

JUGGLING FOR EFFECTIVE LEARNING' - METHODS TO ENCOURAGE THE ACQUISITION OF NEW SKILLS IN AN OPTIONAL COURSE AT ÓBUDA UNIVERSITY

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Abstract

Play and learn, or learn while having fun. Unfortunately, in today's achievement-oriented society, education is all about getting a student to complete a predetermined task on time. This pressure can be very stressful for students, especially if they themselves are perfectionists and want to do their best, and fear failure (repeating a term) and the feeling of underachievement when compared to the abilities of their peers. The "Juggling for Effective Learning" course has already been offered six times to students at Óbuda University. The primary reason for the course was to help students who have a disability, primarily a learning disability (dyslexia or dysgraphia). However, students who are curious about the course are also welcome to attend.

Keywords: group work, skill development, learning development, juggling, cascade, circus pedagogy

Disciplines: Pedagogy

Absztrakt

„ZSONGLÓRKÖDÉS A HATÉKONY TANULÁSHOZ” – ÚJ KÉSZSÉGEK ELSAJÁTÍTÁSÁT ÖSZTÖNZŐ MÓDSZEREK AZ ÓBUDAI EGYETEM SZABADON VÁLASZTHATÓ KURZUSÁN

Játék és tanulás, avagy tanuljunk úgy, hogy közben jól érezzük magunkat. Sajnos a mai teljesítményorientált társadalomban már az oktatás is arról szól, hogy egy előre meghatározott feladatot időre tudjon megvalósítani a hallgató. Ez a kényszer nagyon megterheli a diákokat, főleg akkor, ha ők

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maguk maximalisták és szeretnék a legjobbat kihozni magukból, továbbá félnek a kudarctól (a félév ismétléstől), illetve a csoporttársak képességével való összehasonlítás során tapasztalat alulteljesítés érzésétől. A „Zsonglőrködés a hatékony tanuláshoz” kurzus már hat alkalommal került meghirdetésre az Óbudai Egyetem hallgatói számára. A kurzus elsődleges meghirdetésének az oka, azon hallgatók megsegítése volt, akik valamilyen fogyatékossgal élnek, elsősorban tanulási zavarral küzdenek (diszlexia vagy diszgráfia). Ám a kurzusokon azokat a hallgatókat is szívesen látjuk, akik kíváncsiságból jelentkeznek.

Kulcsszavak: csoportmunka, készségfejlesztés, tanulásfejlesztés, zsonglőrködés, kaszkád, cirkuszpedagógia

Diszciplína: neveléstudomány

Introduction

There are a wide variety of learning support courses that provide learning methodological theories. However, in the "Juggling for effective learning" course, gamification and the acquisition of new skills play an important role. This is where circus pedagogy is integrated into the development of students. In the practical sessions, each student leaves the frontal teaching circle and participates in teamwork, using their own strengths to support their teammates. This approach enables students to be more open to others and to dare to ask for and offer help, thus making it easier for them to integrate into a community.

As juggling is an activity that is easy to learn with the right methodology, it helps students to be motivated to learn new things and to persevere in their learning. By working the communication channels between the right and left brain, juggling develops the nervous system.

The course "Juggling for Effective Learning" aims to develop students' confidence and willingness to participate in teamwork, in addition to the theoretical and practical understanding of the role of juggling in increasing neurological harmony and learning efficiency.

The Juggling for Effective Learning course has been offered for the 8th time in the spring semester of the 2023/24 academic year and is

growing in popularity. In the last course, this elective course was chosen not only by Hungarian students but also by many students from the Stipendium Hungaricum programme in English, creating an international atmosphere in each practical session. The first course "Juggling for Effective Learning" was announced in the 2018/19 academic year as part of the project "Complex Institutional Improvements at Óbuda University to jointly improve the quality and accessibility of higher education".

The primary objective of creating the course in 2018 was to promote retention in higher education. An additional objective was also to stimulate students' motivation to participate in the project through learning and group work. Although the juggling course was initially conceived primarily for students with disabilities whose learning disabilities make it particularly difficult for them to keep up with the pace of university education, it will eventually benefit students with learning disabilities as well. Of course, the Juggling for Effective Learning course is optional for any university student, whether or not they have a disability, thus ensuring equal opportunities in higher education. The juggling course uses circus pedagogical methods to develop students' cognitive skills. In a relaxed atmosphere, in a fun and playful way, the students' individual values become more and more apparent

during the group exercises, which provide a pleasant social experience in the context of university education (Picture 1).

Picture 1 A liberated atmosphere at Óbuda University



The Justification of the Juggling for Effective Learning Course at the University of Óbuda

History of recreational circus pedagogy

It was a long way from just training performers on stage to making circus education a recreational, community-building and developmental activity. The second half of the 20th century saw a major turning point with the rise of the new circus. The classical animal show related approach to circus was replaced by an approach based on the human creativity and the overall artistic experience. Circus art and its pedagogy gradually became accessible. This created the basis for many professionals from other fields to bring circus skills into their profession. Circus for leisure as a recreational activity appeared, and the developmental impact of different forms of movement also received increasing attention. Social circus uses circus arts as a tool for social inclusion and for working with disadvantaged people, while therapeutic circus pedagogy can bring the neurodevelopmental effects of circus arts to professionals in a playful

and adaptable way. There is a growing body of studies and research on the developmental impact of circus activities and there is still much untapped potential for the widespread use of circus arts as a tool for self-expression and self-development in the field of playful pedagogy (Gyarmathy, 2012).

Individual development impact of the social circus

When circus education is carried out for a community or social purpose, for example to support disadvantaged groups, it is called social circus. The individual developmental impact of social circus is described in Reg Bolton's *Why Circus Works*. In the socialisation of young people, as a young child grows into an adult, the following six areas are of great importance: self-awareness, risk, confidence, imagination, perseverance and fun. Bolton compares this to the five fingers of the hand and the sixfold unity of the palm, where the palm, the base and connector of the five aspects, is a symbol of the fun surrounding the circus (Figure 1) (Bolton, 2004).

Figure 1. Reg Bolton - the circus works. (Source: Bolton, Reg, 2004)



He worked with children who were living in difficult circumstances and who needed some entertainment. The impact of the new circus (social circus) skills was seen to improve the lives of disadvantaged children. In the mid 1970s, he set up his own circus school. Reg Bolton, a pioneer of the

"new circus", described himself as "an enthusiastic man interested in the educational, self-expression and community development uses of the circus". People involved in social circus are versatile as they discover talent in themselves and others. Historically, the circus has invented multiculturalism, i.e. welcoming artists from other cultures and creating results in diversity (Bolton, 2004).

University education has become very individualised, with everyone setting their own timetable, and it has been particularly difficult to develop creative working groups. In the circus profession, this is inevitable, and collaborative games can only be achieved if the participants transcend their limits, both individually and in terms of their community spirit. University community life takes the form of large gatherings and parties, but this can only partially fulfil the function of enabling students to develop quality relationships with each other. For example, introverts may not attend events, which can lead to feelings of exclusion or loneliness. While an essential element of modern education is to encourage teamwork and cooperation. The social circus approach can forge a community of practice in a university circus event, which is a very important achievement in a practical course.

The neurodevelopmental effects of juggling

A general feature of the circus pedagogical approaches outlined above is that the circus is not an end but a means to support the work of educators with groups of students. The community-building knowledge imparted by the instructor conducting the exercises is combined with creative pedagogical and developmental activities. The neurodevelopmental impact of juggling is scientifically proven, with several foreign studies confirming its outstanding effectiveness.

In Hungary, Gyarmathy created a therapeutic process to help people with learning and developmental disabilities, based on the idea that juggling

can stimulate the bridge between the two hemispheres of the brain. By means of crossing movements with an orderly rhythm, requiring great coordination and precision, the nervous system is harmonised and revitalised. This developmental and ordering process has a positive effect on the mental health of the individual. In collaboration with Craig Quatt, there is also a major international movement to make therapeutic circus pedagogy as widely available as possible.

The juggling course at the University of Óbuda is based on the neurodevelopmental methodology advocated by Gyarmathy, with the help of experienced instructors from the Hungarian Juggling Association. Its aim was to help disadvantaged students to catch up and to strengthen community integration between the faculties, the practical part of which was achieved through the methods of recreational circus pedagogy. The aim was to develop individual and teamwork by practising tricks and choreographing, and to promote self-confidence and trust in the community through collective creativity and creative movement exercises. The theoretical part of the course, which can be found on Moodle, in addition to the cultural history of juggling, will also introduce students to the research of Gyarmathy, so that they know and understand how what they are doing is helping their development on a neurological level. (Gyarmathy, 2012).

Implementation of the course

The Juggling for Effective Learning course at the Óbuda University

Students with disabilities tend to be withdrawn and less sociable with their peers. The Disability Coordinators at Óbuda University strive to help students with disabilities on their faculty to meet the expectations of the university. It is important that students experience a sense of achievement when completing each task. Students with disabilities studying at Óbuda University include

students with some form of dysfunction (typically dyslexia, dysgraphia or dyscalculia). The underlying 'condition' is some kind of 'developmental disorder' that can be developed through techniques that work the right and left hemispheres of the brain. The positive effects of juggling on psychological well-being have already been demonstrated in Japan in a special, small-sample study on anxiety.

Juggling for Effective Learning is an optional course designed primarily to develop students with learning disabilities and to facilitate their integration into the community. The seven courses that have already been completed have included students without any documented dysfunction. For them too, the session proved to be very effective. It has helped them to integrate into a community and to open up to others, including fellow students with learning difficulties (Picture 2). Our aim to make the course open to any student studying at Óbuda University has been achieved.

Picture 2. The joy of working together at the end of the first practical course



Juggling for effective learning, or the launch of recreational circus pedagogy at the University of Óbuda

In 2017, the University of Óbuda developed and adopted a course theme that, in addition to the theoretical foundations, also includes juggling as a practice in the development of students. The Hungarian Juggling Association's juggling instructors were also involved in the development of the course. Using the available scientific materials and the methods of recreational circus pedagogy, a course plan consisting of theoretical and practical parts was prepared. The training also included the compilation of an individual examination paper and a few minutes' presentation.

In the 1st semester of the 2018/19 academic year, 7 students with dysfunctional problems (dyslexia, dysgraphia) participated in the optional course "Juggling for effective learning" at the Faculty of Mechanical and Environmental Engineering of the University of Óbuda.

The second successful course was continued in the second semester of the 2019/20 academic year (with the participation of the current juggler and practical instructor László Bendegúz Pál) with 6 more students, including students from the Kandó Kálmán Faculty of Electrical Engineering.

After a few weeks of face-to-face attendance, the course was relegated to the online platform due to the pandemic, but we were pleased to see that five students from the enrolment group managed to produce their mid-term exam productions of the course at home.

The third course, also announced during the pandemic (in semester II of 2020/21), had already 14 students enrolled, of which 9 students completed the course (Picture 3). The students who were deferred did not participate at all in the practicals (we experienced a zero dropout rate). To learn the practical part of the course, an on-line tutorial video series was created and made available

to students through the Moodle system during the semester.

Figure 3. Exercise of the Juggler course announced for the 2nd semester 2020/21



The majority of the students, with a few exceptions, were students of the Faculty of Light Industry and Environmental Engineering of the University of Óbuda.

In the first semester of 2021/22, due to the special nature of the course, we were allowed to start the course again with only 3 students, which ended with perhaps the most successful productions. The students used a wide variety of juggling tools (such as poi, plate) to create their examination pieces.

We are delighted that since September 2021, there have been applicants for the advertised Juggling course every semester. In 2021/22 Semester II, 9 students, in 2022/23 Semester I, 5 students, in 2022/23 Semester II, 14 students, in 2023/24 Semester I, 12 students, and in the current 2023/24 Semester II, 14 students have chosen the optional course Juggling for Effective Learning. In other words, in three and a half years, another five courses have been added to the students' university studies. Already three of the courses have been attended by students from different countries of the world (such as Jordan, Mongolia, Serbia,

Kosovo, Laos, Turkmenistan), who are all English-language (Stipendium Hungaricum) students. The course, which is conducted in English and is of mixed culture, has demonstrated that circus arts is a global common language that can bring people together regardless of nationality.

The sessions were fun, and students who would not otherwise be connected during their university studies were able to work together on different creative tasks (Picture 4).

Picture 4. In the second semester of 2022/23, both Hungarian and foreign students participated in the course.

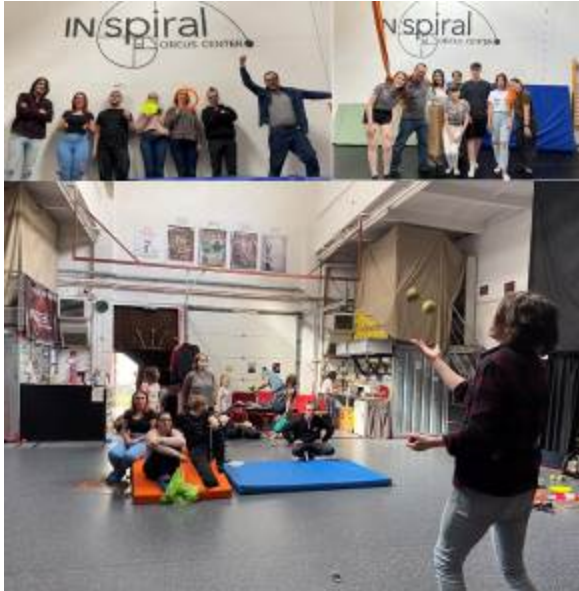


Four course exams were held in the Inspiral Circus Centre (Picture 5), where students could show each other what they had created during the semester in an exclusive environment, with a glimpse of active circus life - with artists practising in the adjacent halls and the possibility to try out different tools such as unicycles. Several students put together joint choreographies, resulting in duo and trio numbers.

Elements of the Course Implementation **Building the knowledge base**

The Juggling for Effective Learning course is offered as an optional catch-up course. To the great surprise of the students, it is not just a frontal course based on a mainly theoretical basis, but a

Picture5. Juggling students at the Inspiral Circus Centre



direct, interactive course with a practical component involving project work, in which they can adapt their experience in learning juggling to their studies, both individually and in the community.

The optional course on Juggling for Effective Learning includes one lecture and one hour of practical work. Two credits can be earned by completing this course. At the end of the semester, students can assess their knowledge of the theoretical material by means of an on-line test. The theoretical material is available in its entirety on the MOODLE system of the University of Óbuda, partly in the form of text-based, partly in the form of transferred and self-produced tutorial videos (recorded in the electronic learning materials studio).

The theoretical material of the optional course "Juggling for effective learning", available on-line, covers the following topics: a zsonglőrködés története és kultúrája,

- the neurological background of learning and learning disorders in relation with juggling,

- the role of rhythm and rhythm keeping while dealing with learning disorders,
- the three ball cascade's significant role in dealing with learning disorders,
- the balance system as a cognitive organizer,
- the role of fingers in cognitive efficiency.

Practical topics, juggling technique basics with the following 5 tools:

- juggling ball exercises:
 - developing ball awareness by handling 1 ball: throws around the body, alternating hands, group exercises
 - 2 balls in separate hands trick variations
 - 2 balls in one hand
 - 3 ball cascade, i.e. continuous movement of 3 balls
 - 3 ball basic tricks.
- juggling plate exercises:
 - spinning the plate
 - Finger to finger, hand over hand
 - throwing with a stick
- flower stick exercises:
 - rolling exercises, individual, group
 - two leading sticks throwing, passing
 - balancing the stick
 - tik-tak exercise, learning to swing with alternate sticks
 - variations on one stick rotation
- poi exercises:
 - one-handed spinning, sensing planes around the body
 - two-handed rotation, parallel stance
 - crossings
 - asynchronous spinning variations
- diabolo exercises:
 - diabolo retraction with the string of a guide stick,
 - developing control of the rotation plane
 - basic string tricks
 - diabolo throwing, passing

Experience

While practicing juggling, we learn models of cooperation, acceptance, perseverance, emotion regulation, learning, success. It is good for the student to see that his success is a result of the work he has put in, that his learning strategy works and that he can be successful in other situations with the same strategy, then this knowledge will have an impact on other areas of his life.

Questionnaire survey

An anonymous questionnaire consisting of four main units was designed to assess student satisfaction with the Juggling for Effective Learning tool. The answers to the questions in the questionnaire will also help us to identify the direction in which the course should be continued and the strengths and weaknesses of the course.

A total of 58 students enrolled in the 6 Juggling courses launched over the past 7 years, of which 12 did not complete the semester requirements. The majority of them did not attend the course at all and therefore we did not send them the questionnaire, as we would not have received relevant answers to the questions we asked about the course "Juggling for effective learning". The students of the first course (7 students), who started in the first semester of the 2018/19 academic year, were still taking part in the practical training under the guidance of another juggling instructor, Veronika Gallyas (head of the Hungarian Juggling Association). Although the questionnaire is anonymous, we assume that only a few of the first course students also answered the questions of the questionnaire sent to them.

Of the 46 participants who successfully completed the 1+5 Juggling for Effective Learning elective course, 45% of all participants honoured us with their answers. 54% (25) of the students who successfully completed the course were male, while 46% (21) were female.

The gender ratio of those who completed the questionnaire shows that female students (75%) were the most likely to be willing to take the time to complete the questionnaire (15).

The students of the courses were typically (43 students - light industrial engineering, environmental engineering and industrial product and design engineering) students of the Sándor Rejtő Sándor Faculty of Light Industry and Environmental Engineering, due to the activities of Piroška Prokai, Disability Coordinator, and her personal inspiration, and presumably because the course was offered under the auspices of the Rejtő Faculty. However, in all the faculties of the University, the elective courses include the elective course Juggling for Effective Learning. One way of promoting the course is to publish a call for students on the Neptun home page during the semester of course registration.

We were interested in the best academic average of the students who filled in the questionnaire to see how typically academic results influence the choice of a course on learning methodology as an elective. From the responses we received, we could see that 55% (11 students) could be considered as particularly good learners, as their best GPA was 4.00-5.00 or above. 6 (30%) were also successful at university with a best GPA between 3.00 and 4.00, and only 10% (2) had a GPA between fair and average, while 1 could not remember exactly what he had studied at university.

The responses showed that the course was of great interest to good students and not only to those with learning disabilities.

The second block of questions was specifically related to the Juggling Effectiveness course. We wanted to know how the participants had found out about this optional course. 50% of the students (10 students) were motivated by their teacher/instructor and 1 student was motivated by his/her equal opportunities coordinator to take the Juggling course. And although all year groups leave

the course enthusiastic and promising to promote it, there was only 1 participant who had heard about this optional subject from a "friend/classmate/friend of a previous course participant".

Since students can take a wide range of courses to support and prepare them for learning during their secondary school studies, the majority of them, 45%, thought that the course "Juggling for effective learning" would also provide only theoretical knowledge and learning methodology. 35% expected to "learn real juggling" and 20% (4) thought that their course would contain both theoretical and practical elements.

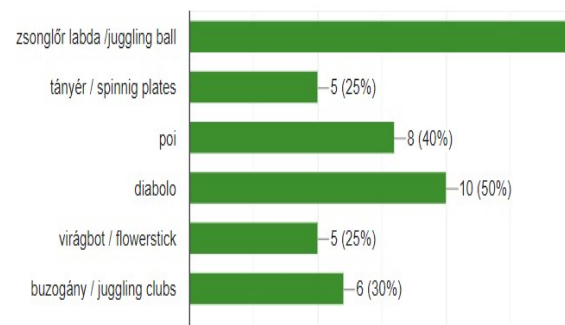
To the question "What did you get from the course?" respondents were given the option to tick more than one answer. The majority of respondents (80%), 16 of them, selected the answer "it's fun to be able to juggle a few juggling tools". 12 (60%) selected the answer "I proved to myself that I can do it". This is an important point, as it allows students to remind themselves that there is nothing impossible, that they can do it, when doing theoretical material that seems impossible to learn, as well as practical tasks. This line is also reinforced by the answers "it made me realise that I am not so bad", marked by 10 students, and "it helped me to organise my thoughts because I am quite scattered", marked by 8 students. 30% of respondents said that "it helped me to learn", while 5 "it taught me to work in a team".

50% of the respondents were able to use what they had learnt on the Juggling course in their studies, while 41% were able to use it well or very well. Similar proportions were found for the applicability of the theoretical and practical knowledge acquired in everyday life, with 45% of respondents considering it to be moderately applicable and 40% considering it to be good or excellent.

In order to ensure that the right proportion of time is spent on the presentation of juggling tools

in future courses, we asked which tool was the most popular with each participant in the course? 85% marked the juggling ball, 50% the diabolo and 40% the poi (Figure 2), which could be borrowed during the semester for practice at home.

Figure 2. A "Which instrument did you like best?" question. Source: Athors.



In order to complete the Juggling for Effective Learning course by the end of the semester, students are required to perform a production in the presence of their classmates and instructors during the final exercise. For the practical exam, the students have already had 5 opportunities to perform on the Inspiral Circus Centre's stage, a worthy place to perform. The anxiety and fear of performing is palpable for most of the students. However, when asked "How much stress or pleasure does the preparation of the end-of-semester production cause you?", 75% of the respondents experienced the preparation of the exam production as a pleasure and only 5 respondents felt that they experienced some stress or less in the preparation of the exam paper.

90% of the students were satisfied with the theoretical background information related to the Juggling course, which consisted of links, videos and tutorial videos uploaded on the university's Moodle system. 95% of the students were fully satisfied with the exercises presented and learned in the practical lessons.

The course was not considered too difficult to complete by 55% of the students. In response to the question "What did you find difficult in completing the course?", "learning to throw a cascade with a juggling ball" was typically the most difficult task to master, marked by 45% of respondents. Furthermore, "not succeeding in a trick after several attempts" was also perceived as a difficulty. This feeling of failure was overcome by practice during the semester. The juggling ball (35%) and the flower stick and mace (15-15%) were the most challenging for the students.

All respondents said they would be happy to recommend other students to take the course. The following reasons were given for promoting the course:

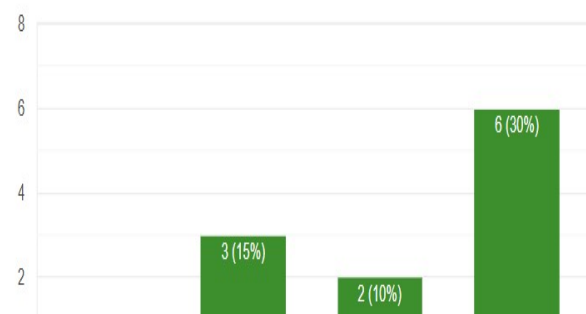
- Good friends, interesting "learning material", makes the timetable more varied
- It's something to relieve the stress from other subjects where you don't have to be worried for the other courses exam but at the same time learn something while having fun and in the end of the semester learn a new skill
- Besides all the written, on-screen, theoretical material, it was fun to learn and improve myself in a different way. When you are studying, you don't let yourself get distracted and do a lot of things that are considered "useless", but in this case, there was no other choice, this kind of self-improvement was left. Refreshing!
- I recommend it, because the exercises develop useful skills that are also necessary during our studies (e.g. concentration) and the course can be a lasting good experience, whether we practice the subjects alone or with a group.
- In addition to being a good pastime, taking the course has helped me more than once, either to de-stress or during breaks between studies.
- It is fun and useful
- I think that besides being pretty cool to be

able to juggle, during a long and boring study session, throwing a ball helps to relax my brain a bit

- It's fun and an interesting skill to learn with a lot of benefits.
- Because it's quite a good way to relax, and it can also provide a positive feedback for those who are coping with some kind of difficulty in their daily life.

We hope to see an increase in the popularity of the Juggling for Effective Learning elective course in the coming semesters. The juggling course also aims to help students learn to see themselves as being able to overcome their fears of what seems 'unfulfilling', with several practical exercises involving students from the course working together in groups. The majority of students on the course (75%) like to work in teams, with only 5 stating that they do not consider themselves team players. Given these responses, it was interesting to see how difficult the students found teamwork during the course (Figure 3).

Figure 3. Responses to the question "How difficult did you find teamwork during the course?" (1. felt very difficult - 5 felt very easy)



Among the group exercises, students liked the warm-up exercises and, "when we stood in a circle and threw balls in a row facing each other, first one, two, and then more and more."

Of the individual practice exercises, several students mentioned that they liked the ones where they were able to master the three-ball toss and practice tricks with the balls.

Juggling is identified by many with the three-ball throw, so it was a very important part of the course design to get students to master this. Circus is a space-intensive activity, so we make extensive use of the university facilities, going out into the hallway or courtyard depending on the weather, and participants enjoy using the university grounds in a different way from the usual.

Some of the students on the course have a disability or learning difficulty. 25% have a learning difficulty. Learning to juggle is a very complex operation, and gives you immediate feedback if something is not working. The course aims to provide students with advice and principles that they can apply to other areas of learning. From the importance of making mistakes in learning, to stress management, to setting the right learning pace. In addition, the experience of flow while juggling is an experience that can also be used while learning other subjects, and many of those who found the juggling course useful have reported that they still juggle regularly during their university studies to keep their minds and attention in the right state.

Summary

The course "Juggling for Effective Learning" was organised for the eighth time by the Faculty of Mechanical and Environmental Engineering of Sándor Rejtő Sándor, with the participation of 76 students. Each course was unique and successful.

Our aim is to use this new-wave pedagogical approach to establish a practice that promotes

support for those in higher education. Today's world demands a high level of adaptability from people in professional fields, regardless of their job. Today, everyone is "juggling their lives" between professional, personal, social and changing digital tools and the needs of the individual. We can live this situation as a creative playground. Hands-on juggling experience is an advantage in developing the skills needed to overcome challenges. We see it as important that the positive example of recreational circus pedagogy, the benefits of this course, become increasingly clear to those working in the field of education, as it can become clear that play-making and development can go hand in hand in the spirit of juggling.

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