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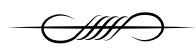
Practical testing of the Flow-based pedagogy model



Abstract

The main aim of the research presented in this paper is to understand students' reactions during lessons using the traditional and Flow-based pedagogical model. In order to improve students' flow state and knowledge, a pilot study is presented that presents the research results recorded in lessons designed at the Ludovika University of Public Service without and based on the Flow-based pedagogical model. The lessons were measured using the validated Dominek Learning Flow Questionnaire (Dominek 2023). In this study we aimed to present the results of the surveys of lessons without the Flow-based pedagogical model and lessons with the model (Dominek 2022).

Keywords

Flow-based pedagogical model, Dominek's Learning Flow Questionnaire, higher education, lessons

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Theoretical approach

Within the description of positive psychology, the PERMA model (happiness model) is associated with Martin Seligman (Seligman, 2011), which can be used as a basis for developing educational or developmental programmes. According to Martin Seligman, in his 2011 study, five different factors contributed to the experience of well-being: 1. positive emotions, 2. reflection, 3. relationships, 4. meaningful life, 5. achievement. Later, the PERMA model was expanded to include the vitality factor - now 6 factors contribute to the experience of well-being - and therefore the PERMA model was changed and from 2018 it will be called the PERMA + V model (Seligman, 2018). Positive psychology emphasises the joy of learning and development, self-esteem, the perception of success as a reward, the importance of striving for improvement, and curiosity. Human culture can only exist in community. It is through contact, communication and feedback with others that cultural phenomena unfold and survive. Often the vehicle of culture is the form of communication realised in the creation of symbols, colours, shapes and visual meanings that directly affect the subconscious of the individual. This is especially true when a group of individuals, through their experiences, be it a social campaign or the mass media, shape the quality of their thinking, their way of life and establish a set of values (Balatoni 2023; Jancsák 2020).

Flow emerged from positive psychology, the theory developed by Mihály Csíkszentmihályi and Martin Seligman (Seligman – Csíkszentmihályi 2000). According to Csíkszentmihályi, the person experiencing „flow" is so immersed in the activity that it becomes effortless, spontaneous and offers the pleasure of a „perfect experience". This is why he calls this experience „flow" (Csíkszentmihályi 2001). Most people expect flow or experience to come from a change in external circumstances, so we think our goals are beyond us. If we look for challenges, we can live the moment of experience. Flow, according to Csíkszentmihályi, can only be achieved when the achievement of such challenges creates new desires. There are many ways to achieve mind control, empirical research reports, but they all have one thing in common: they enable the joy of discovery. They increase the listener's ability to perform and experience a more complex state of consciousness. They can then reach a more advanced level of self, the development of which is the key to the stream experience. This is different from simple pleasure, because simple pleasure comes from fulfilling an expectation within us. True joy is different. According to Csíkszentmihályi, it is when we are able to go beyond our expectations and have an experience that we had not previously expected.

The Flow-based pedagogical model (Dominek 2022) focuses on the optimal experience and performance of learning based on flow theory. The model aims to organise the learning process so that learners reach the flow state as often as possible. This state occurs when learners are fully engaged, challenged and enjoying the learning activity. The model has six interrelated pillars to help learners achieve flow throughout the learning process:

1: Learning tasks should challenge learners according to their abilities. This helps to avoid boredom and anxiety and maintains interest and motivation.

2. Clear objectives and immediate feedback: Learners should be given clear objectives and continuous, immediate feedback. This helps them to know whether they are on the right track and how they can improve their performance.

3. Concentration and attention: Learning activities should have the full attention of the learner. Interactive and experiential learning methods help to maintain concentration.

4. A sense of control: learners should feel in control of the learning process. This increases their confidence and commitment to learning.

5. Loss of sense of time: In an optimal learning environment, learners are so immersed in tasks that they lose track of time. This is a key element for deeper learning.

6. Experience for its own sake: Learning activities should be enjoyable and intrinsically rewarding. Students learn not only for the external rewards, but also to enjoy the process of learning.

In summary, the model seeks to optimise the learning process by providing learners with challenging but achievable tasks, clear goals and immediate feedback. The model supports learners' focused attention, sense of control and enjoyment of learning, helping them to achieve and maintain a state of flow while learning.

Research

Developing competences is essential for the jobs of the 21st century (Barnucz 2022, Goldfárthné 2020), so we are conducting innovative research based on good practices among Ludovika University of Public Service students to develop these competences. The main objective of the research is to understand students' reactions to teaching using the traditional and flow-based pedagogical model and to propose pedagogical elements necessary to make the flow experience available in higher education. In order to improve the students' flow state and knowledge, I present in this paper a pilot research study that presents the research results recorded in the Ludovika University of Public Service, in lessons designed without and based on the Flow-based pedagogical model. Based on the research results, it is important to identify areas where the training can be improved and to determine what elements are necessary to ensure that students leave the class with the most positive experience possible. The research was carried out during the 2023/2024 academic year. The number of students who attended the class without the Flow-based pedagogical model was: n=53, while the number of students who attended the class with the Flow-based pedagogical model was: n=55.

Research question: Are lecturers at the selected university able to provide students with an enjoyable and challenging lesson according to their own methodology without using the Flow-based pedagogical model?

Methodology

The Flow-based pedagogical model was used for the research. This model is designed to create a flow experience and challenge while developing specific skills. I used Dominek's Learning Flow Questionnaire (DLFQ) (Dominek 2023) for the research. The DLFQ measures flow experience during learning activities. The aim of the questionnaire is to identify flow states

associated with learning and to understand the factors that contribute to an engaged and enjoyable learning experience. The DLFQ can measure the impact of different learning environments and methods on learners' flow experience and assess the extent to which a particular pedagogical method enhances this experience. Based on the results of the questionnaire, trainers can modify learning environments and methods to improve learners' flow experience. The questionnaire helps to identify factors that increase learner motivation during learning activities. In the questionnaire developed by Dominek, respondents were given 16 statements and asked to rate their agreement on a 5-point Likert scale (1 = strongly disagree; 5 = strongly agree). The questionnaire, consisting of 16 items, consisted of two factors: the immersion factor, which refers to the basic conditions for entering the flow zone, and the equilibrium factor, which summarises the phenomena accompanying the flow).

Results

1. In relation to the measurement of learning flow in university classes without the use of a Flow-based pedagogical model (N=53 students), the following results were obtained (Table 1): The research data show that in the case of classes without the knowledge of the Flow-based pedagogical model, the teacher was able to achieve an overall flow score of 62.05%, which means that the students' engagement in the lesson did not occur. The immersion factor produced a lower result than the balance factor, but neither reached 80%, which is the basis for continuous sustained flow presence.

	Database	**Average**	**Flow %**	**Standard deviation**
Immersion factor	without model 53 persons	24,4906	61,2265	7,97260
Balance factor	without model 53 persons	25,1509	62,87725	9,48561
Total	without model 53 persons	49,6415	62,05188	16,63880

Table 1: Outcome without a Flow-based pedagogical model in a public higher education institution.

2. The results of the university lessons based on the Flow-based pedagogical model (N= 53 students) are as follows (Table 2): The data show that in the case of the lessons based on the Flow-based pedagogical model, the teacher was able to achieve an overall flow score of 87.75%, which means that the students' involvement was present throughout the lesson, thus maintaining a sustained flow state throughout the lesson. The immersion factor produced a lower score than the balance factor.

	Database	Average	Flow %	Standard deviation
Immersion factor	with model 55 persons	35,6000	89	3,84402
Balance factor	with model 55 persons	34,6000	86,5	4,08152
Total	with model 55 persons	70,2000	87,75	6,79013

Table 2: Flow-based pedagogical model results for students in a state-maintained higher education institution in Hungary, measured in classroom sessions

Comparative analysis in the light of data

A comparison of the data shows higher Flow scores for lessons taught according to the Flow-based pedagogical model. A deeper analysis revealed the following results:

a) Comparison of lessons taught with and without the model:

When comparing lessons taught without the Flow-based pedagogical model and lessons taught according to the Flow-based pedagogical model, the significance is shown by retrieving the t-test (Tables 3, 4). It is clear that those who used the Flow-based pedagogical model achieved significantly better results. This result supports the usefulness of introducing a flow-based pedagogical model.

Group statistics

	N	Mean	Standard deviation	Standard error
Immersion: with model	55	32,6000	5,31106	,71614
Immersion: without model	53	23,6117	7,21957	,71137
Balance: with model	55	32,6727	4,24724	,57270
Balance: without model	53	21,7087	9,01484	,88826
Total: with model	55	65,2727	8,28979	1,11779
Total: without model	53	45,3204	15,18592	1,49631

Table 3: Comparison of results with and without model 1.

Independent sample analysis

	Levene's Test for Equality of Variances		t-test for Equality of Means							
					Significance				95% Confidence Interval of the Difference	
	F	Sig	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Immersion: Equal variances assumed	6,508	,012	8,128	156	<,001	<,001	8,98835	1,10582	6,80404	11,17266
Immersion: Equal variances were not assumed			8,905	140,645	<,001	<,001	8,98835	1,00941	6,99278	10,98392
Balance: Equal variances assumed	44,066	<,001	8,520	156	<,001	<,001	10,96399	1,28692	8,42196	13,50602
Balance: Equal variances were not assumed			10,374	154,122	<,001	<,001	10,96399	1,05688	8,87616	13,05182
Total: Equal variances assumed	25,958	<,001	9,042	156	<,001	<,001	19,95234	2,20656	15,59374	24,31094
Total: Equal variances were not assumed			10,683	155,900	<,001	<,001	19,95234	1,86773	16,26302	23,64166

Table 4: Comparison of results with and without model 2.

If we look at the overall scores, it is worth highlighting that there is a high difference of 20 points between the model and no model lessons.

b) Examining the difference between university students in relation to each other: no significance can be detected, so no difference between students (Table 5)

Group statistics

University	N	Mean	Standard deviation	Standart error
NKE 1	55	33,0857	4,94898	,83653
NKE 2	53	31,7500	5,92830	1,32561
NKE 1	55	32,0857	4,46800	,75523
NKE 2	53	33,7000	3,71484	,83066
NKE 1	55	65,1714	8,49389	1,43573
NKE 2	53	65,4500	8,13359	1,81873

Table 5: Comparison of the difference between university students

Therefore, based on the student results above, differences between students in university classes do not affect the results.

Conclusion

Using a Flow-based pedagogical model, the classroom environment facilitates the balance between challenge and skill, a critical factor in flow. The results presented in university classrooms support the use of this model as a method for instructors to actively engage students, promoting deep immersion and sustained focus on tasks. The results show that the university classroom can be made experiential and challenging for students in many ways, using multiple modalities and activities to create creative learning experiences.

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