European Journal of Open Education and E-learning Studies
ISSN: 2501-9120
ISSN-L: 2501-9120
Available on-line at: www.oapub.org/edu

DOI: 10.46827/ejoe.v10i3.6282 Volume 10 | Issue 3 | 2025

EXPLORING THE IMPACT OF THE FLIPPED CLASSROOM ON STUDENT ENGAGEMENT IN HIGHER EDUCATION: A QUANTITATIVE APPROACH

Despoina Plota[1],
Thanassis Karalis[1i],
Katerina Kedraka[2]
[1]Department of Educational Sciences
and Early Childhood Education,
University of Patras,
Greece
[2]Department of Molecular Biology and Genetics,
Democritus University of Thrace,
Greece

Abstract:
The flipped classroom has been increasingly implemented in higher education, as it emphasizes participatory and student-centered learning. The purpose of this study was to quantitatively investigate the effectiveness of this model in the course Lifelong Learning and Education at the University of Patras. The study involved 87 fourth-year students who attended two-thirds of the course through the flipped classroom method, while the remaining part was delivered using traditional and experiential teaching approaches. Data were collected through a questionnaire based on the structure and dimensions of the UK Engagement Survey (UKES), which derives its theoretical and methodological framework from the National Survey of Student Engagement (NSSE). The instrument was adapted to the Greek context, and selected items were used following official authorization. The questionnaire was administered both before and after the intervention to record changes in student engagement. Data analysis was conducted using a paired-samples t-test, which revealed statistically significant improvements in key dimensions of student engagement. Specifically, findings indicated enhanced collaboration with peers, increased interaction with the instructor, improved course organization, and a strengthened sense of learning community. Additionally, positive changes were observed in the development of critical thinking and self-regulation skills, though not to the same extent. Overall, the results demonstrate that the implementation of the flipped classroom substantially contributed to enhancing the quality of the learning experience, fostering both intrinsic motivation and sustainable student engagement. The study highlights the pedagogical value of the approach and

[i] Correspondence: email karalis@upatras.gr

underscores the need for further research, enriched instructional design, and institutional support in order to promote the systematic adoption of the flipped classroom in Greek higher education.

Keywords: flipped classroom, student engagement, active learning, self-directed learning, quantitative research

1. Introduction

In recent years, higher education has been facing increasing demands for the renewal of teaching practices, in order to meet the needs of a new generation of students who grow up in highly digital environments (Prensky, 2001; Siemens, 2005). The Fourth Industrial Revolution and the rapid diffusion of information and communication technologies make it necessary for university teaching to adapt to new conditions that require the development of skills, flexibility, and collaborative forms of learning (Karalis & Koutsonikos, 2003; Karanikola & Panagiotopoulos, 2018). Within this framework, the flipped classroom model has emerged as one of the most widely adopted pedagogical innovations. Its basic principle lies in reversing the traditional structure of teaching: students study the theoretical material outside the classroom, usually through videos or digital tools, while class time is dedicated to discussions, collaborative activities, and the application of knowledge (Bergmann & Sams, 2012; Bishop & Verleger, 2013). This method is closely connected to theories of constructivism (Fosnot & Perry, 2005) and self-directed learning (Knowles, 1975; Garrison, 1997), as it encourages active student participation and responsibility for one's own learning. Relevant studies have shown that the flipped classroom contributes to strengthening student engagement, critical thinking, and collaborative learning (Chen et al., 2014; O'Flaherty & Phillips, 2015; Zainuddin & Halili, 2016), while at the same time enhancing academic support and promoting classroom interaction (Gilboy, Heinerichs, & Pazzaglia, 2015; Karalis & Raikou, 2021). Moreover, theories of transformative learning and lifelong education highlight the importance of the method in developing adaptability and critical reflection skills, particularly in higher education contexts (Mezirow, 2000; Liodaki & Karalis, 2013; Raikou & Karalis, 2016; Karalis & Plota, 2019). The changing digital identities of students also shape different expectations from teaching (Prensky, 2001).

However, the literature also emphasizes the challenges associated with the model, such as the need for technological support, the redefinition of the instructor's role, and students' difficulties with time management (Abeysekera & Dawson, 2015; Akçayır & Akçayır, 2018). In the Greek context, researchers have highlighted the need to adopt innovative teaching methods that respond to the new demands of higher education and the challenges of distance learning (Kedraka & Kaltsidis, 2020). At the same time, studies have underlined the role of the instructor as a facilitator of learning and the necessity of developing communities of practice that enhance student engagement (Fragoulis & Armakolas, 2019; Fragoulis & Armakolas, 2023).

The concept of student engagement describes the extent to which students invest cognitive, emotional, and social resources in the learning process (Fredricks, Blumenfeld & Paris, 2004). It refers both to active participation in in-class and out-of-class activities and to commitment at the level of motivation, self-regulation, and interaction with the learning environment (Axelson & Flick, 2011). According to Kuh (2009), engagement is a critical factor for the quality of higher education, as it is directly linked to academic success and the development of life skills. Within the flipped classroom framework, engagement is not limited to physical presence or formal attendance; rather, it extends to continuous interaction with digital materials, collaboration with peers, and active contribution to the creation of a learning community (Prince, 2004; Gilboy, Heinerichs & Pazzaglia, 2015).

The present study focuses on the implementation of the flipped classroom method in the course "Lifelong Learning and Education" at the University of Patras and investigates, through quantitative analysis, the changes in student engagement before and after the educational intervention. The analysis is based on an adapted questionnaire derived from the UK Engagement Survey (UKES), a tool widely used internationally to measure student engagement (Coates, 2010; Kuh, 2009). The study aspires to contribute to both Greek and international literature by providing empirical evidence regarding the effectiveness of the flipped classroom in enhancing students' participation and engagement.

3. Methodology

3.1 Sample

The study involved 87 fourth-year students from the Department of Educational Sciences and Early Childhood Education (DESECE) at the University of Patras. The sample was selected based on availability (convenience sampling), as the course "Lifelong Learning and Education" is a compulsory core course. Participation was voluntary, and all ethical principles of educational research were followed, ensuring anonymity and confidentiality (Cohen, Manion & Morrison, 2018). The selection of this sample is considered indicative in studies of Greek higher education, as it enables the depiction of specific educational interventions in an authentic environment (Kedraka & Kaltsidis, 2020).

3.2 Research Instrument

The questionnaire used in this study was based on the UK Engagement Survey (UKES), which draws its theoretical and methodological foundations from the National Survey of Student Engagement (NSSE) in the United States (Coates, 2010; Kuh, 2009). The tool was adapted to the Greek context to reflect the specificities of the university environment. It included a total of 65 Likert-scale questions, organized into 15 thematic axes that represent key dimensions of student engagement, such as collaboration with peers, interaction with instructors, feedback, course organization, critical thinking, and the

development of academic and personal skills. The selection of UKES was based on its recognition as an internationally validated tool for reliably measuring student engagement (Buckley, 2014). Reliability was tested using Cronbach's α, which showed satisfactory levels (>0.80) across all factors (Field, 2018).

3.3 Research Aim and Questions

The aim of the study was to evaluate the impact of the flipped classroom model on students' learning experience and engagement. The research focused on the extent and manner in which students dedicate time and effort to their studies, participate in academic and extracurricular activities, develop interactions with teaching staff, and cultivate skills such as critical thinking and collaborative learning (Fredricks, Blumenfeld & Paris, 2004; Kuh, 2009).

Based on this, the following research questions were formulated:

1) Does the flipped classroom intervention improve student engagement in the learning process?
2) Which factors facilitate and which hinder the acceptance of the model?
3) What are students' views of the method (satisfaction) and their suggestions for future use?

3.4 Procedure

The study was conducted during the winter semester of the 2023–2024 academic year. The course was organized according to the flipped classroom model, which combined elements of asynchronous and face-to-face teaching, effectively functioning as a form of blended learning (Karalis & Plota, 2019).

More specifically:

- In asynchronous phase, students studied multimedia material (videos, interactive activities on the e-class platform).
- In the face-to-face phase, where class time was used for discussions, group work, and reflective activities.

The questionnaire was administered in two phases:

- **Pre-test**: Recorded the students' initial status, their motivations, and the difficulties they faced. The questionnaire included the core UKES questions, distributed across 15 thematic axes related to student engagement, skill development, and interaction/feedback. At this stage, emphasis was placed on capturing the baseline situation in terms of study habits, motivation, and potential difficulties in participating in the learning process during their university studies to date.
- **Post-test**: The second questionnaire was more comprehensive and included four sections:
  a) Repeated the UKES engagement questions to enable comparison before and after the intervention.

b) Focused on students' motivation, assessing the extent to which the flipped classroom enhanced their interest, intrinsic motivation, and sense of autonomy.
c) Explored obstacles and challenges, such as technical issues, time management, or the need for additional guidance.
d) Included open-ended questions and qualitative comments, allowing students to freely express their experiences, impressions, and suggestions for improvement.

This differentiation between pre-test and post-test questionnaires enabled a more holistic investigation: on the one hand, the quantitative measurement of engagement before and after the intervention, and on the other hand, an understanding of the motivations and obstacles that emerged during the implementation of the flipped classroom (Karalis & Plota, 2019).

3.5 Data Analysis

Data analysis was conducted using SPSS software. Initially, factor analysis was applied to the questionnaire items to confirm the theoretical organization of the 60 questions into 15 thematic axes. The analysis confirmed that the variables clustered into factors representing key dimensions of student engagement, such as collaboration, critical thinking, instructor interaction, and skill development. Subsequently, an independent samples t-test was performed to investigate differences before and after the intervention. A paired-samples t-test had originally been considered; however, due to differences in the number of participants (86 in the pre-test and 83 in the post-test), exact matching of pairs was not possible. For this reason, the independent samples t-test was chosen, with degrees of freedom $df = n_1 + n_2 - 2 = 167$ (Field, 2018). The analysis revealed statistically significant differences ($p < 0.05$) in several engagement dimensions. In particular, improvements were observed in collaboration with peers, interaction with instructors, and a stronger sense of learning community. Students also reported better course organization and feedback, as well as significant progress in critical thinking and self-regulation skills.

The analysis of the additional sections of the final questionnaire (motivation, obstacles, subjective experience) provided a more detailed view of the method's implementation. Students reported increased intrinsic motivation and a stronger sense of autonomy, while also identifying obstacles such as technical difficulties and time management challenges. These findings enrich the quantitative evaluation with qualitative insights and confirm previous Greek studies highlighting the contribution of the flipped classroom and active learning more broadly to higher education (Karalis & Plota, 2019; Kedraka & Dimasi 2016; Boumponari, et al, 2023).

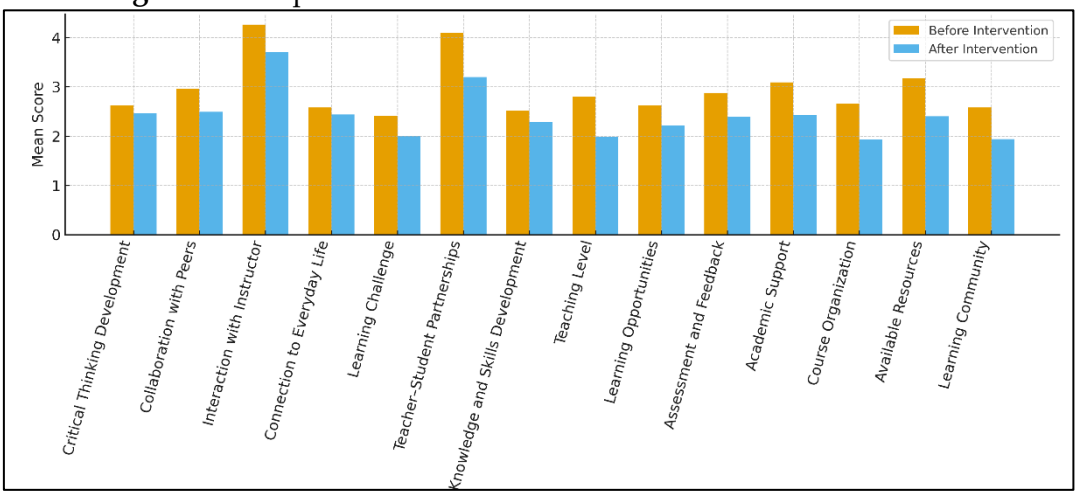
4. Results

The analysis revealed significant differences between pre- and post-intervention measurements following the implementation of the flipped classroom. To determine whether there were differences in the factors of student engagement before and after the intervention, an independent samples t-test was conducted, as the two samples were not fully identical (pre-test: 86, post-test: 83; df = 167). Table 1 below provides an overview of these results, offering a clearer comparison between pre- and post-intervention perceptions.

Table 1: The aggregated results, showing that students' perceptions after the flipped classroom intervention were, for the most part, clearly more positive compared to their perceptions before the intervention

Dimension	N_Before	Mean_Before	SD_Before	N_After	Mean_After	SD_After	t	sig.
Critical Thinking Development	86	2.63	0.547	83	2.47	0.743	1.638	0.052
Collaboration with Peers	86	2.96	0.875	83	2.49	0.792	3.598	0.0
Interaction with Instructor	86	4.26	0.606	83	3.7	0.934	4.583	0.0
Connection to Everyday Life	86	2.58	0.602	83	2.44	0.778	1.271	0.103
Learning Challenge	86	2.41	0.81	83	2.0	0.914	3.066	0.001
Teacher–Student Partnerships	86	4.09	0.908	83	3.2	0.981	6.113	0.0
Knowledge and Skills Development	86	2.52	0.687	83	2.29	0.717	2.205	0.014
Teaching Level	86	2.8	0.694	83	1.99	0.961	6.333	0.0
Learning Opportunities	86	2.63	0.617	83	2.22	0.843	3.591	0.0
Assessment and Feedback	86	2.88	0.761	83	2.39	1.049	3.461	0.0
Academic Support	86	3.09	1.144	83	2.43	1.136	3.759	0.0
Course Organization	86	2.66	0.763	83	1.93	0.828	5.942	0.0
Available Resources	86	3.17	0.799	83	2.4	0.986	5.549	0.0
Learning Community	86	2.58	0.867	83	1.94	0.742	5.158	0.0

Figure 1: Comparison of mean Scores before and after intervention



As shown in Table 1, the independent samples t-test indicated statistically significant improvements after the intervention across most axes of student engagement. Specifically:

- **Collaboration with other students** ($t(167) = 3.598$, $p < .01$): A significantly higher level of collaboration among peers was recorded after the intervention ($M = 2.49$, $SD = 0.792$) compared to before ($M = 2.96$, $SD = 0.875$).
- **Interaction with the instructor** ($t(167) = 4.583$, $p < .01$): A significantly higher level of interaction with the instructor was recorded after the intervention ($M = 3.70$, $SD = 0.934$) compared to before ($M = 4.26$, $SD = 0.606$).
- **Learning challenge** ($t(167) = 3.066$, $p < .05$): A significantly higher level of self-reported learning challenge was recorded after the intervention ($M = 2.00$, $SD = 0.914$) compared to before ($M = 2.41$, $SD = 0.810$).
- **Instructor–student partnerships** ($t(167) = 6.113$, $p < .01$): A significantly higher level of instructor–student partnership was recorded after the intervention ($M = 3.20$, $SD = 0.981$) compared to before ($M = 4.09$, $SD = 0.908$).
- **Development of knowledge and skills** ($t(167) = 2.205$, $p < .05$): A significantly higher perceived development of knowledge and skills was recorded after the intervention ($M = 2.29$, $SD = 0.717$) compared to before ($M = 2.52$, $SD = 0.687$).
- **Quality of teaching** ($t(167) = 6.333$, $p < .01$): The perceived quality of teaching was significantly improved after the intervention ($M = 1.99$, $SD = 0.961$) compared to before ($M = 2.80$, $SD = 0.694$).
- **Opportunities for learning** ($t(167) = 3.591$, $p < .01$): Perceived learning opportunities were significantly higher after the intervention ($M = 2.22$, $SD = 0.843$) compared to before ($M = 2.63$, $SD = 0.617$).
- **Assessment and feedback** ($t(167) = 3.461$, $p < .01$): Assessment/feedback was perceived as significantly improved after the intervention ($M = 2.39$, $SD = 1.049$) compared to before ($M = 2.88$, $SD = 0.761$).

- **Academic support** ($t(167) = 3.759$, $p < .01$): Academic support was perceived as significantly improved after the intervention ($M = 2.43$, $SD = 1.136$) compared to before ($M = 3.09$, $SD = 1.144$).
- **Course organization** ($t(167) = 5.942$, $p < .01$): Course organization was perceived as significantly improved after the intervention ($M = 1.93$, $SD = 0.828$) compared to before ($M = 2.66$, $SD = 0.763$).
- **Available resources** ($t(167) = 5.549$, $p < .01$): Available resources were perceived as significantly increased after the intervention ($M = 2.40$, $SD = 0.986$) compared to before ($M = 3.17$, $SD = 0.799$).
- **Learning community** ($t(167) = 5.158$, $p < .01$): Integration into the learning community was perceived as significantly improved after the intervention ($M = 1.94$, $SD = 0.762$) compared to before ($M = 2.58$, $SD = 0.867$).

Overall, students evaluated course organization and feedback more positively, while noteworthy progress was also recorded in critical thinking and self-regulation—a finding consistent with international literature showing that the flipped classroom enhances a sense of community and fosters meaningful feedback (Gilboy, Heinerichs, & Pazzaglia, 2015; O'Flaherty & Phillips, 2015). In sum, the greatest improvements were observed in quality of teaching ($t = 6.333$), instructor–student partnerships ($t = 6.113$), course organization ($t = 5.943$), available resources ($t = 5.549$), and learning community ($t = 5.158$) following the implementation of the flipped classroom model.

The findings indicate that the flipped classroom had a positive effect on key factors related to student engagement, such as quality of teaching, course organization, available resources, and learning community (Karalis & Plota, 2019; Kedraka & Kaltsidis, 2020). Improvements were also evident in collaboration with peers, assessment/feedback, and academic support, corroborating international studies that emphasize the benefits of the method for collaborative learning and teaching quality (Gilboy, Heinerichs, & Pazzaglia, 2015; O'Flaherty & Phillips, 2015). Nevertheless, the analysis also revealed areas with weaker effects or moderate post-intervention levels, such as critical thinking and the connection of learning to everyday life. Similar issues have been identified in Greek higher education, underlining the need for more systematic instructional design to foster higher-order cognitive skills (Kedraka, 2023). While the flipped classroom substantially enhances active participation and the quality of the learning experience, further enrichment of instructional methodology appears necessary.

The intervention seems to have strengthened students' learning motivation, both in terms of intrinsic motivation (active participation, curiosity, willingness to collaborate) and extrinsic factors (clarity of goals, fairness of assessment, timely feedback), confirming findings from Greek literature which highlight the role of innovative university pedagogy in enhancing student engagement (Karadimitriou, et al, 2020). These perceptions of an organized, supportive, and learning-relevant course appear to have nurtured greater willingness to engage and a stronger sense of personal responsibility. Despite areas needing further development, the overall findings suggest that the flipped classroom can operate as a lever for strengthening both intrinsic motivation and

sustained engagement, making it a pedagogically effective choice in contemporary university teaching. Moreover, the results align with international and Greek literature and lay the groundwork for a critical interpretation of the method's potentials and limitations in higher education, presented in the next section.

5. Discussion

The results indicate that implementing the flipped classroom in the course "Lifelong Learning and Education" had a clearly positive and statistically significant effect on student engagement. Improvements in critical axes—such as peer collaboration, sense of learning community, course organization, and quality of feedback—are in line with international research (Gilboy, Heinerichs & Pazzaglia, 2015; Zainuddin & Halili, 2016). The observed increase in engagement following a more student-centered teaching model suggests that the flipped classroom can act as a catalyst for improving the quality of university learning in the Greek context.

The noted progress in critical thinking and autonomy skills fits within a theoretical framework drawing on constructivism (Fosnot & Perry, 2005) and self-directed learning (Garrison, 1997). The opportunity for students to prepare asynchronously and use in-class time for higher-order cognitive activities enhances their metacognitive awareness, as highlighted in other studies (Zainuddin & Perera, 2019). This is particularly important in settings where self-regulation and critical analysis are essential for academic and professional success (Karalis & Plota, 2019). Greek literature also emphasizes that university pedagogy and the integration of innovative methods—such as distance education and the flipped classroom—are closely linked to quality assurance in higher education.

Some axes, however, showed smaller or non-significant improvements, such as direct interaction with the instructor and instructor–student partnerships. This agrees with international research showing that the flipped classroom shifts the instructor's role from "transmitter of knowledge" to learning facilitator (Bergmann & Sams, 2012; Herreid & Schiller, 2013), a change not always perceived positively by all students (Findlay-Thompson & Mombourquette, 2014). Reduced perceptions of direct interaction may reflect the emphasis placed on peer collaboration rather than individualized communication with the instructor.

Exploring the additional sections of the final questionnaire further enriched the findings. Reported motivations—such as enhanced autonomy, responsibility, and interest—are closely linked to Self-Determination Theory (Deci & Ryan, 2000), where intrinsic motivation is a key mechanism for active participation. Conversely, reported obstacles—especially technical difficulties and time management—correspond to challenges identified in both Greek and international studies (Akçayır & Akçayır, 2018; Kedraka & Kaltsidis, 2020), underscoring the need for robust institutional and technological support so that implementation does not unduly burden students.

Overall, the findings align with the international trend viewing the flipped classroom not merely as a teaching technique but as a broader pedagogical paradigm shift (Abeysekera & Dawson, 2015; O'Flaherty & Phillips, 2015). In the Greek context, the method gains particular relevance at a time when university teaching must respond to demands for digitalization, quality enhancement, and alignment with the European Higher Education Area standards (Karalis & Raikou, 2021; Karanikola & Panagiotopoulos, 2018).

At the same time, limitations emerged. The lack of improvement in connecting learning to everyday life suggests the need to further enrich instructional design, emphasizing experiential learning and project-based activities as highlighted in the literature. Moreover, although critical thinking improved, it remained at moderate levels, implying that integrating more open-ended, complex tasks could further strengthen this dimension.

In sum, the study identifies the flipped classroom as a pedagogical innovation with substantial benefits for student engagement and motivation, while contributing to the development of collaborative and supportive learning communities. Its success, however, depends on factors such as the implementation context, instructional design, and technological/institutional support. The findings add valuable empirical evidence to the discussion on modernizing university teaching in Greece and point to the need for interdisciplinary applications, longitudinal evaluation, and mixed-methods approaches.

5.1 Limitations of the Study

Despite the positive findings, certain limitations should be considered when interpreting the results. First, the sample was limited to a single department and a single course, which constrains generalizability. While the data clearly indicate trends toward increased engagement, implementation in different disciplines or other universities may yield different outcomes (Kedraka & Kaltsidis, 2020). Second, the data were collected exclusively through self-report questionnaires. Although common in engagement research (Kuh, 2009), self-reports carry the risk of socially desirable responses and may not always capture actual behavior (Cohen, Manion & Morrison, 2018). Third, the intervention lasted for one academic term, which is sufficient to capture short-term changes but not long-term effects on students' academic trajectories and professional development (O'Flaherty & Phillips, 2015).

5.2 Directions for Future Research

Future research could focus on broadening the sample, with implementations across different departments, disciplines, and geographical contexts to examine generalizability. The use of mixed methods—combining quantitative and qualitative tools—can provide a more holistic picture of students' experiences and attitudes (Karalis & Plota, 2019). Longitudinal studies are also important to investigate the sustainability of the flipped classroom's positive effects over time (Abeysekera & Dawson, 2015), as are comparative studies with other active learning approaches (e.g., experiential or project-based learning)

to highlight each model's advantages and limitations (Prince, 2004). Additionally, more research is needed on the changing role of the instructor as facilitator and coach (Herreid & Schiller, 2013; Bergmann & Sams, 2012), as well as on the importance of institutional and technological support, which can mitigate barriers related to technical issues or time management (Akçayır & Akçayır, 2018).

Acknowledgments
The author gratefully acknowledges the *National Survey of Student Engagement (NSSE)* for granting permission to use selected items from *The College Student Report*, which were adapted and incorporated into the present research (All items used with permission from *The College Student Report, National Survey of Student Engagement, Copyright 2001–2025 The Trustees of Indiana University*). Special thanks are also extended to the students of the Department of Educational Sciences and Early Childhood Education at the University of Patras for their willing and active participation, which was essential for the completion of this study.

Conflict of Interest Statement
The author declares no conflict of interest.

About the Author(s)
Despoina Plota is a PhD candidate in the Department of Educational Sciences and Early Childhood Education at the University of Patras, Greece. She holds Master's degrees in Adult Education and in Mathematics of Computers and Decisions, as well as a Bachelor's degree in Mathematics. Her research focuses on innovative teaching methods, with a particular emphasis on the flipped classroom model in higher education, student engagement, and the integration of digital learning environments.
Thanassis Karalis is a Professor of Lifelong Learning and Adult Education of the Department of Educational Science and Early Childhood Education at the University of Patras, Greece. He is also the Director of the Center for Teaching and Learning and the Child Rights Center at the University of Patras.

Katerina Kedraka is a Professor of Soft Skills for BioScientists and Lifelong Learning at the Democritus University of Thrace, Greece. She is the Head of the Laboratory of 'Teaching and Professional Development of BioScientists' and Director of the Postgraduate Program "Didactics of BioSciences". She is the Coordinator of the Center for Teaching and Learning Support (CTL) and a member of the Board of the Center for Training and Lifelong Learning of her University. She also teaches at the Hellenic Open University in the postgraduate program "Adult Education". She is a founding member of the Hellenic Network of University Pedagogy and President of the Balkan Network for University Pedagogy established through the Erasmus+ MAGNET program. She is an elected member of the Board of the Hellenic Association for the Education of Adults and co-editor of the international journal *Adult Education Critical Issues*. Her research focuses on University Pedagogy, Adult Education, Teaching and Learning, Professional Counseling and Career Management for bioscientists, educators, adults, women, vulnerable groups and youth.

References

Abeysekera, L., & Dawson, P. (2015). Motivation and cognitive load in the flipped classroom: Definition, rationale and a call for research. *Higher Education Research & Development, 34*(1), 1–14. https://doi.org/10.1080/07294360.2014.934336

Akçayır, G., & Akçayır, M. (2018). The flipped classroom: A review of its advantages and challenges. *Computers & Education, 126,* 334–345. https://doi.org/10.1016/j.compedu.2018.07.021

Axelson, R. D., & Flick, A. (2011). Defining student engagement. *Change: The Magazine of Higher Learning, 43*(1), 38–43. https://doi.org/10.1080/00091383.2011.533096

Bergmann, J., & Sams, A. (2012). *Flip your classroom: Reach every student in every class every day*. International Society for Technology in Education. Retrieved from https://books.google.ro/books/about/Flip_Your_Classroom.html?id=nBi2pwAACAAJ&redir_esc=y

Bishop, J. L., & Verleger, M. A. (2013, June). The flipped classroom: A survey of the research. In *ASEE Annual Conference & Exposition Proceedings* (pp. 1–18). ASEE Conferences. Retrieved from https://www.researchgate.net/publication/285935974_The_flipped_classroom_A_survey_of_the_research

Boumponari, Th., Kedraka, K., Grigoriou, M., Lampropoulou, M., Skavdis, G., & Konstantopoulos, Ch. (2023). Use of flipped classroom didactic model in biosciences for high education. *Pedagogikos Logos*, *28*(1), 79–99. https://doi.org/10.12681/plogos.31610

Buckley, L. A. (2014). *Student engagement: A literature review*. York, UK: Higher Education Academy. Retrieved from https://www.advance-he.ac.uk/knowledge-hub/student-engagement-literature-review

Chen, Y., Wang, Y., Kinshuk, & Chen, N. S. (2014). Is FLIP enough? Or should we use the FLIPPED model instead? *Computers & Education, 79*, 16–27. https://doi.org/10.1016/j.compedu.2014.07.004

Coates, H. (2010). *Development of the Australasian Survey of Student Engagement (AUSSE).* Higher Education, 60(1), 1–17. https://doi.org/10.1007/s10734-009-9281-2

Cohen, L., Manion, L., & Morrison, K. (2018). *Research Methods in Education* (8th ed.). London: Routledge. https://doi.org/10.4324/9781315456539

Deci, E. L., & Ryan, R. M. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*(1), 68–78. https://doi.org/10.1037/0003-066X.55.1.68

Field, A. (2018). *Discovering statistics using IBM SPSS Statistics* (5th ed.). Sage. Retrieved from https://books.google.ro/books/about/Discovering_Statistics_Using_IBM_SPSS_St.html?id=JIrutAEACAAJ&redir_esc=y

Findlay-Thompson, S., & Mombourquette, P. (2014). Evaluation of a flipped classroom in an undergraduate business course. *Business Education & Accreditation, 6*(1), 63–71. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2331035

Fosnot, C. T., & Perry, R. S. (2005). Constructivism: A psychological theory of learning. In C. T. Fosnot (Ed.), *Constructivism: Theory, perspectives, and practice* (pp. 8–38). Teachers College Press. Retrieved from https://gchallenge.org/wp-content/uploads/2023/05/Constructivism.pdf

Fragoulis, I., & Armakolas, S. (2019). The contribution of distance education in the field of university pedagogy aiming at quality assurance. In *Proceedings of the 10th International Conference in Open & Distance Learning* (Vol. 10, No. 3A). Hellenic Open University. https://doi.org/10.12681/icodl.2038

Fragoulis, I., & Armakolas, S. (2023). The contribution of e-mentoring in the field of university pedagogy. In *Proceedings of the 7th Panhellenic Conference "ICT in Education"* (pp. 959–968). University of Patras. Retrieved from https://eproceedings.epublishing.ekt.gr/index.php/cetpe/article/view/5803

Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research, 74*(1), 59–109. https://doi.org/10.3102/00346543074001059

Garrison, D. R. (1997). Self-directed learning: Toward a comprehensive model. *Adult Education Quarterly, 48*(1), 18–33. https://doi.org/10.1177/074171369704800103

Gilboy, M. B., Heinerichs, S., & Pazzaglia, G. (2015). Enhancing student engagement using the flipped classroom. *Journal of Nutrition Education and Behavior, 47*(1), 109–114. https://doi.org/10.1016/j.jneb.2014.08.008

Herreid, C. F., & Schiller, N. A. (2013). Case studies and the flipped classroom. *Journal of College Science Teaching, 42*(5), 62–66. Retrieved from https://www.jstor.org/stable/43631584

Karalis, T., & Koutsonikos, G. (2003). Issues and Challenges in Organizing Web-based Courses for Adults, *Themes in Education, 4*(2), 177-188. Retrieved from

https://www.researchgate.net/publication/215576866_Issues_and_Challenges_in_Organizing_Web-based_Courses_for_Adults

Karalis, T., & Plota, D. (2019). Organization and implementation of a flipped classroom course in the Greek university context. *Educational Journal of the University of Patras UNESCO Chair, 6*(2), 53–61. https://doi.org/10.26220/une.3110

Karalis, T., & Raikou, N. (2021). Flipping the classroom remotely: Implementation of a flipped classroom course in Higher Education during the COVID-19 pandemic, *European Journal of Open Education and E-learning Studies, 6*(2), 21-38. http://dx.doi.org/10.46827/ejoe.v6i2.3809

Karadimitriou, K., Valkanos, Ev., Delios, Ath., Kedraka, K., Orfanidou, Ch., Panagiotopoulou, F., Panta, D., & Skiada, M. (2020). Views and Suggestions for Teaching in Greek Higher Education: Evaluation and Support for Effective Teaching, University Pedagogy. In: K. Kedraka (Ed.). *Proceedings of the 1st Panhellenic Conference of University Pedagogy "Teaching and Learning in Higher Education"*, 97-130. Alexandroupolis: DUTH. Retrieved from https://panepistimiaki-paidagogiki.gr/conference2019/proceedings/

Karanikola, Z., & Panagiotopoulos, G. (2018). 4th industrial revolution: The challenge of changing human resources skills. *European Journal of Training and Development Studies, 5*(3), 1–7. European Centre for Research Training and Development, UK. Retrieved from https://www.researchgate.net/publication/328292612_4TH_INDUSTRIAL_REVOLUTION_THE_CHALLENGE_OF_CHANGING_HUMAN_RESOURCES_SKILLS

Kedraka, K., & Dimasi, M. (2016). *Teaching in Higher Education: Obligation, burden or privilege?* In: S. Kioulanis, A. Paschalidou, & Z. Harpantidou (Ed.) (2016). Innovative Applications in Teaching Practice. Proceedings of the 1st International Congress of Applied Experiential Teaching, (172-197). Scientific and Educational Association, Educational Cycle (Ekp@ideftikos Kyklos). Drama, 27-29 November 2015. Retrieved from

Kedraka, K., & Kaltsidis, C. (2020). Effects of the COVID-19 pandemic on university pedagogy: Students' experiences and considerations. *European Journal of Education Studies, 7*(8), 17–29. https://doi.org/10.46827/ejes.v7i8.3176

Kedraka, K. (2023). Developing Social and Soft Skills in Higher Education. In: A. Antonarakou, A. Tsiboukli, & N. Tsoli (Eds.) *Proceedings of the 1st International Conference "Lifelong Learning and Adult Education in the Age of Uncertainty: Pathways for Social Inclusion and Social Cohesion"*, National and Kapodistrian University of Athens (EKPA) and Centre for Continuing Education and Lifelong Learning ("KEDIVIM") of EKPA, pp. 185-192. Athens:30 March to 1 April 2023. [in Greek]

Kedraka, K. (2016). University Pedagogy: Past, Present and Future. In K. Kedraka (ed), *Proceedings of the Symposium: "University Pedagogy: Education and Teaching in Tertiary Education, a Terra Incognita?"*, (21-39). Alexandroupolis-Greece. Retrieved from http://panepistimiaki-paidagogiki.gr/praktika/praktika2016.pdf

Knowles, M. S. (1975). Self-directed learning: A guide for learners and teachers. New York: Association Press. Retrieved from https://eric.ed.gov/?id=ED114653

Kuh, G. D. (2009). The National Survey of Student Engagement: Conceptual and empirical foundations. *New Directions for Institutional Research, 2009*(141), 5–20. https://doi.org/10.1002/ir.283

Liodaki, N., & Karalis, T. (2013). Educational Experiences and Transformative Learning in Higher Education in Greece: A Case Study with Student Teachers, *International Journal of Education, 5*(2), 75-85. http://dx.doi.org/10.5296/ije.v5i2.3282

Mezirow, J. (2000). Learning to think like an adult: Core concepts of transformation theory. In J. Mezirow & Associates (Eds.), *Learning as transformation: Critical perspectives on a theory in progress* (pp. 3–33). Jossey-Bass. Retrieved from https://eric.ed.gov/?id=ED448301

O'Flaherty, J., & Phillips, C. (2015). The use of flipped classrooms in higher education: A scoping review. *Internet and Higher Education, 25,* 85–95. https://doi.org/10.1016/j.iheduc.2015.02.002

Prensky, M. (2001). Digital natives, digital immigrants. *On the Horizon, 9*(5), 1–6. https://doi.org/10.1108/10748120110424816

Prince, M. (2004). Does active learning work? A review of the research. *Journal of Engineering Education, 93*(3), 223–231. https://doi.org/10.1002/j.2168-9830.2004.tb00809.x

Raikou, N., & Karalis, T. (2016). Adult Education and Higher Education – A Focus on Transformative Learning in Universities, *International Education and Research Journal, 2*(4), 19-22. Retrieved from https://www.researchgate.net/publication/305903415_Adult_Education_and_Higher_Education_-_A_Focus_on_Transformative_Learning_in_Universities

Siemens, G. (2005). Connectivism: A learning theory for the digital age. *International Journal of Instructional Technology and Distance Learning, 2*(1), 3–10. Retrieved from https://jotamac.typepad.com/jotamacs_weblog/files/connectivism.pdf

Zainuddin, Z., & Halili, S. H. (2016). Flipped classroom research and trends from different fields of study. *International Review of Research in Open and Distributed Learning, 17*(3), 313–340. https://doi.org/10.19173/irrodl.v17i3.2274

Zainuddin, Z., & Perera, C. J. (2019). Exploring students' competence, autonomy and relatedness in the flipped classroom pedagogical model. *Journal of Further and Higher Education, 43*(1), 115–126. https://doi.org/10.1080/0309877X.2017.1356916