



e-FLIP

Facilitating e-Learning for an Inclusive Pedagogy

Editors:

Melike ÖZYURT · Emrah CİNKARA

Mehmet BARDAKÇI · Mehmet Fatih ÖZMANTAR



Editors: Mehmet Bardakçı, Emrah Cinkara, Mehmet Fatih Özmantar, Melike Özyurt

e-FLIP: Facilitating e-Learning for an Inclusive Pedagogy

e-ISBN 978-625-6810-29-7

Responsibility of the contents belongs to the authors.

© 2023, PEGEM AKADEMI

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or any information storage or retrieval system, without prior permission in writing from the publishers.

Pegem Academy Publishing Training and Consultancy Services Tic. Ltd. Şti. It is a publishing house founded in 1998 in Ankara/Turkey which has been operating regularly for 25 years. Published books, it is included in the catalogs of higher education institutions. Pegem Academy has over 1000 publications in the same field from different authors. Detailed information about our publications can be found <http://pegem.net>.

First Edition: September 2023, Ankara

Language Editors:

Elisabetta Bergia, Marta Codina

Contributing Authors:

Sigrún J. Baldursdóttir, Federico Flecchia, Maite Garcia, Eva Ladňáková,
Tomáš Milata, Ada Rigacci, Athanasia Zagkoti

Typesetting:

Matúš Dobeš, Andrea Florková, Miroslava Konrádová

Printed by: Sonçağ Yayıncılık Matbaacılık Reklam San Tic. Ltd. Şti.

İstanbul Cad. İstanbul Çarşısı 48/48 İskitler/Ankara

Tel: (0312) 341 36 67

Publishing House Certificate Nu.: 51818

Printing House Certificate Nu.: 47865

Contact

Macun Mah. 204. Cad. No: 141/A-33 Yenimahalle/ANKARA

Publishig House:0312 430 67 50

Distribution: 0312 434 54 24

Preparatory Courses: 0312 419 05 60

Internet: www.pegem.net

E-mail: pegem@pegem.net

WhatsApp: 0538 594 92 40

This document has been prepared for the European Commission however it reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Project Partners

You can find the most relevant information about the project partners ranging from Iceland to Turkey, from Spain to Germany, from Italy to Greece to Slovakia.

SLOVAKIA – Súkromná stredná odborná škola Pro scholaris (e-FLIP project coordinator)
- www.proscholaris.sk



PRO SCHOLARIS



ITALY – I.I.S. Grandis - grandiscuneo.edu.it

SPAIN – Institut Guillem Catà - guillemcata.cat



TURKEY – Gaziantep University - gantep.edu.tr

ICELAND –
Center for Language and Literacy
- mml.reykjavik.is



GREECE – INNOVED - innoved.gr

GERMANY – Europass Berlin
- www.europassberlin.com



Foreword and Acknowledgment

We are thrilled to present “Facilitating e-Learning for an Inclusive Pedagogy,” a remarkable journey through the dynamic crossroads of digital education and inclusive teaching practices. This book is the culmination of our collective dedication within the framework of an EU-supported project. Our pursuit was to delve into the ever-evolving realm of e-learning, with the shared vision of nurturing an education that transcends barriers.

In an era where technological progress shapes our interconnected world, education is undergoing a profound transformation. The traditional classroom is now infused with digital tools, expanding our reach to learners of diverse backgrounds, abilities, and locations. This shift not only enriches the learning experience but also underscores the crucial responsibility to ensure equitable access to the benefits of digital education.

“Facilitating e-Learning for an Inclusive Pedagogy” is more than a book; it’s a manifestation of our collective aspiration for an education that knows no bounds. It embodies the collaborative spirit that fueled our project and serves as an indispensable resource for educators, policymakers, and all individuals invested in reshaping the educational landscape.

We, as the editors, would like to express our heartfelt gratitude to the authors who have poured their expertise into this book, shaping its chapters with their experiences and insights. Each section stands as a testament to their commitment and knowledge, illuminating the e-Flip methodology and its technological dimensions.

Within these pages, we also acknowledge the synergy between human creativity and Generative Language Models (GLMs) like chatGPT. In some sections, authors have seamlessly integrated the capabilities of technology to enrich their narratives. Authors have diligently ensured the alignment of content, granting their approval and guaranteeing accuracy.

Our appreciation extends to PegemAcademy, whose unwavering support has been instrumental in bringing this book to fruition. Their commitment to education and scholarly pursuits has played a pivotal role in shaping the discourse within these pages.

The indispensable role of the European Commission cannot be overlooked; their support has brought life to this project. Their endorsement has allowed the e-Flip initiative to leverage technology for educational advancement.

Lastly, we appreciate the invaluable contributions of our project partners’ participants. Their insights and commitment have shaped the essence of the e-Flip journey, as technology, inclusion, and pedagogy converge in the realm of education.

As you embark on this exploration, we invite you to embrace the e-Flip

experience, where technology and education intertwine to shape the future of learning. Join us in charting new educational horizons.

Warm regards,

Editors

About the Authors

In this section, we present brief biographies of the authors, highlighting their identities, professional backgrounds, affiliations, and areas of expertise or interest. Examples are as follows:

Ms. Sigrun J. Baldursdottir has a MA degree in primary school teaching with focus on language and literacy education. She works at the department of Education and Youth in Reykjavik. Her focus is on consulting primary school teachers in Reykjavik with emphasis on literacy education and professional development in that field. She is also a guest teacher at the University of Iceland where she participates in teacher training of Language and Literacy.

Dr. Mehmet Bardakçı holds an MA and a PhD in English Language Teaching and currently works as an associate professor of English Language Teaching at Gaziantep University, Faculty of Education. His work focuses specifically on teacher training, teaching English to young learners, critical reading and reasoning fallacies.

Ms. Elisabetta Bergia holds a degree in Business Administration and a further specialization for teaching to students with special needs. She is currently a business teacher at the vocational “Grandis” high school in Cuneo (Italy) where she also implement the CLIL methodology; moreover her work also focus on how to use digital skills in an inclusive and cooperative way.

Dr. Emrah Cinkara is an Associate Professor in the Department of English Language Teaching at Gaziantep University. He received his BA, MA, and PhD degrees in English Language Teaching and his research interests include online language teaching, teacher education, and technology-integrated teaching. He is also the Director of the Distant Education Center at the same institution.

Ms. Marta Codina is an English teacher with 35 years of experience who is deeply interested in innovative teaching methods and the integration of IT technologies in education. At present, she is working at Institut Guillem Catà, a Secondary and VET high school in Manresa, Barcelona.

Mr. Federico Flecchia teaches computer science laboratory at the high school institute “Sebastiano Grandis” in Cuneo. His work is focused on training students and other teachers on the use of digital tools as well as developing digital citizenship skills. Other fields of interest are software programming, accessibility, and e-government.

Ms. Andrea Florková is an IT expert and teacher devoted to innovation in pedagogy and digital environments. She contributed to the creation of this e-Book as a technical support.

Ms. Maite Garcia is a technical teacher of Hairdressing and Aesthetics. She has 34 years of experience training vocational students. She is a very restless person and is constantly looking for innovation to apply to his classes, to motivate and train professionals with maximum competence.

Ms. Miroslava Konrádová as an experienced secondary school teacher in the field on Mathematics and Information Technologies for more than two decades contributed to the technical aspects and solutions of this e-Book.

Ms. Eva Ladňáková has been an inseparable part of Erasmus+ project management activities for a decade. She is one of the leading innovative teachers in relation with online educational practices within her Spanish and Tourism subjects. Ms. Ladňáková practices and performs most of her lessons in an innovative way.

Mr. Tomáš Milata represents the visions and innovation in the secondary VET education. As the Head Teacher of the coordinating project partner, his sense for responsibility and progress reflects the tendencies in modern education of the 21st century.

Dr. Melike Özyurt is an associate professor in the Curriculum Development and Instruction Program at Gaziantep University, Gaziantep Faculty of Education, Turkey. She is delivering courses at graduate and postgraduate levels. Her research interests include curriculum development, curriculum evaluation, instructional design, higher-order thinking skills, 21st-century skills, values education, and cognitive awareness. She has carried out many EU projects related to school education. By the European Commission, two projects were selected as Good Practice and the last project was awarded with The European Innovative Teaching Awards 2022.

Dr. Mehmet Fatih Özmantar is a full-time professor at Gaziantep Faculty of Education in the Mathematics and Science department. He was involved in several research projects funded by the European Commission and the Scientific and Technological Research Council of Turkey. The projects were related to program development for technology-supported instruction, continuous professional development, and social inclusion. His research interests involve technology

integration, socio-cultural theories of learning and teaching, critical pedagogy, program development, professional development, and teacher educators.

Ms. Ada Rigacci holds degrees in classical literature and ancient history. Since 2018 she has been working as a Teacher Trainer at Europass Teacher Academy and Europass Berlin, in the course of her teacher training activity she has specialized in creating and implementing specific programs to support teaching such as Classroom management, Conflict management, Flipped Classroom and Project Based Learning. In addition to training primary, secondary and university teachers, its activities also include the development of course content, its updating, and the development of new teaching methodologies in collaboration with schools in numerous European countries as part of Erasmus + projects.

Ms. Athanasia Zagkoti finished her undergraduate studies in Lifelong Learning at the University of Macedonia in Greece. She additionally holds an MBA from the University of Thessaly with a focus in Human Resources Management. She works as a Project Manager and contributes significantly to the coordination and preparation of European projects.

Contents

CHAPTER I

Facilitating E-learning for an Inclusive Pedagogy

CHAPTER II

Journey to e-FLIP

1 Why do We Need e-FLIP?	3
1.1 A Barrier to Effective Online Education: Lack of Teachers' Techno-pedagogical Competencies	3
1.1.1 Strategies for Developing Teachers' Techno-pedagogical Competencies	5
1.2 Challenges Arising from the Application of Face-to-Face Teaching Approach to Online Education	6
1.3 Challenges of Teacher Education Process Based on Face-to-Face Practices in the Context of Online Teaching.	7
2 Emergence of the e-FLIP Project: Rise of Ideas.	9
2.1 The Aims of the e-FLIP Project	10
3 Innovative Results of the e-FLIP Project	11
3.1 e-FLIP Teaching Model	11
3.1.1 Scope of the e-FLIP Teaching Model.	11
3.1.2 Methodology Followed while Developing the e-FLIP Teaching Model	12
3.1.3 Innovative Dimension of the e-FLIP Teaching Model.	13
3.2 The e-FLIP Teacher Training Module	13
3.2.1 Scope of the e-FLIP Teacher Training Module.	13
3.2.2 Methodology Followed While Developing the e-FLIP Teacher Training Module.	13
3.2.3 Innovative Dimension of the e-FLIP Teacher Training Module	14
3.3 The e-FLIP Digital Platform	15
3.3.1 Scope of the e-FLIP Digital Platform	15
3.3.2 Methodology Followed While Developing the e-FLIP Digital Platform.	15
3.3.3 Innovative Dimension of the e-FLIP Digital Platform	16
3.4 The e-FLIP e-Book	16
3.4.1 Scope of the e-FLIP e-Book.	16
3.4.2 Methodology Followed While Writing the e-FLIP e-Book	17
3.4.3 Innovative Dimension of the e-FLIP e-Book	17

CHAPTER III

Background to Flip Teaching

1 Flipped Learning	18
2 The History of Flipped Learning: Early Attempts of Integrating Technology in Education	18
3 The Rise of Online Learning Environment	19
4 Flipped Learning	20
5 Flipped Learning and its Application	21
6 Advantages of Flipped Learning	24
7 Criticisms of Flipped Learning	24

CHAPTER IV

e-FLIP Learning

1 Flipped Learning: a Paradigm Shift in Education	26
2 The Rise of e-FLIP Model	27
3 The e-FLIP Model	28
3.1 Components	29
3.1.1 Pre-Lesson Stage	30
3.1.2 While-Lesson Stage	31
3.1.3 Post-Lesson Stage	32
3.2 Principles of the e-FLIP Model	33
3.2.1 e-Collaboration:	33
3.2.2 e-Communication.	34
3.2.3 e-Monitoring:	36
3.3 The Innovative Aspect of e-FLIP Learning (in Comparison to Flipped Learning).	37
3.3.1 Differences and Similarities in Comparison to Flipped Learning	37
3.3.2 Affordances Introduced with e-FLIP	39

CHAPTER V

Digital Tools for e-FLIP

1 A Brief History of Web 2.0 Tools	41
2 Classification of Web 2.0 Tools	43
2.1 Content Creation Tools	43
2.2 Communication and Social Networking Tools	44
2.3 Collaboration and Project Management Tools.	45
2.4 Education Tools	45

2.5	Characteristics of Web 2.0 Tools.	47
2.6	Web 2.0 Tools and e-FLIP Model	48
2.6.1	From the Teachers' Perspective	48
2.6.2	From the Students' Perspective	49

CHAPTER VI

Legislative Regulations Concerning Web 2.0 Tools

1	Legislative and Ethical Considerations while Using Digital Tools (web 2.0) in Education	51
2	The Digital Competence of Educators	51
3	What are Web 2.0 Tools?	52
4	The Digital Evolution in the School System.	52
5	Legislative Regulations	53
6	Ethical Aspects	54
7	Conclusions	55

CHAPTER VII

1	Basecamp	57
1.1	What is Basecamp?	57
1.2	The Main Features of Basecamp.	57
1.3	How to Use Basecamp	58
1.4	Pros and Cons of Basecamp	58
1.5	Hints for an Effective Use of Basecamp	59
1.6	A Sample Work for Basecamp	59
2	Canva.	59
2.1	What is Canva?	59
2.2	The Main Features of Canva	60
2.3	How to Use Canva.	60
2.4	Pros and Cons of Canva	61
2.5	Hints for an Effective Use of Canva	61
3	EdPuzzle.	61
3.1	What is EdPuzzle?	61
3.2	Main Features of Edpuzzle	62
3.3	How to Use EdPuzzle	62
3.4	Pros and Cons of EdPuzzle.	63
3.5	Hints for an Effective Use of EdPuzzle	63
3.6	A Sample Work for Edpuzzle.	63
4	Kahoot	64
4.1	What is Kahoot?	64
4.2	The Main Features of Kahoot	64

4.3	How to Use Kahoot	64
4.4	Pros and Cons of Kahoot	65
4.5	Hints for an Effective Use of Kahoot	66
5	Mentimeter	66
5.1	What is Mentimeter?	66
5.2	Main Features of Mentimeter	66
5.3	How to Use Mentimeter	67
5.4	Pros and Cons of Mentimeter	67
5.5	Hints for an Effective use of Mentimeter	68
5.6	A Sample Work for Mentimeter	68
6	Sutori.	68
6.1	What is Sutori?	68
6.2	Main Features of Sutori.	69
6.3	How to Use Sutori	69
6.4	Pros and Cons of Sutori.	69
6.5	Hints for an Effective Use of Sutori	70
6.6	A Sample Work for Sutori	70
7	Socrative	70
7.1	What is Socrative?	70
7.2	Main features of Socrative	70
7.3	How to use Socrative	70
7.4	Pros and Cons of Socrative	71
7.5	Hints for an effective use of Socrative	72
7.6	A sample Work for Socrative	72
8	Nearpod	72
8.1	What is Nearpod?	72
8.2	Main Features of Nearpod	72
8.3	How to Use Nearpod	73
8.4	Pros and Cons of Nearpod	73
8.5	Hints for an Effective Use of Nearpod	74
8.6	A Sample Work for Nearpod	74
9	Edmodo	74
9.1	What is Edmodo?	74
9.2	Main Features of Edmodo	74
9.3	How to Use Edmodo	74
9.4	Pros and Cons of Edmodo	75
9.5	Hints for an Effective Use of Edmodo.	75
9.6	A Sample Work for Edmodo	76
10	Crowdsignal	76
10.1	What is Crowdsignal?	76

10.2	Main Features of Crowdsignal	76
10.3	How to Use Crowdsignal	76
10.4	Pros and Cons of Crowdsignal	77
10.5	Hints for an Effective Use of Crowdsignal	77
10.6	A Sample Work for Crowdsignal	77
11	Cacoo/Nulab	78
11.1	What is Cacoo/Nulab?	78
11.2	Main Features of Cacoo/Nulab	78
11.3	How to Use Cacoo/Nulab	78
11.4	Pros and Cons of Cacoo/Nulab	78
11.5	Hints for an Effective Use of Cacoo/Nulab	79
11.6	A Sample Work for Cacoo/Nulab	79
12	Microsoft Sway	79
12.1	What is Microsoft Sway?	79
12.2	The Main Features of Microsoft Sway	79
12.3	How to Use Microsoft Sway	80
12.4	Pros and Cons of Microsoft Sway	80
12.5	Hints for Effective Use of Microsoft Sway	81
12.6	A Sample Work for Microsoft Sway	81
13	Padlet	81
13.1	What is Padlet?	81
13.2	The Main Features of Padlet	82
13.3	How to Use Padlet	82
13.4	Pros and Cons of Padlet	83
13.5	Hints for an Effective Use of Padlet	83
14	Quizlet	84
14.1	What is Quizlet?	84
14.2	The Main Features of Quizlet	84
14.3	How to Use Quizlet	84
14.4	Pros and Cons of Quizlet	85
14.5	Hints for an Effective Use of Quizlet	85
15	Trello	86
15.1	What is Trello?	86
15.2	The Main Features of Trello	86
15.3	How to Use Trello	87
15.4	Pros and Cons of Trello	87
15.5	Hints for an Effective Use of Trello	88
16	VideoAnt	88
16.1	What is VideoAnt?	88
16.2	Main features of VideoAnt	88

16.3	How to Use VideoAnt	89
16.4	Pros and Cons of VideoAnt	89
16.5	Hints for Effective Use of VideoAnt	90
17	Popplet	90
17.1	What is Popplet?	90
17.2	Main features of Popplet.	90
17.3	How to Use Popplet	90
17.4	Pros and Cons of Popplet	91
17.5	Hints for Effective Use of Popplet	92
18	Plickers	92
18.1	What is Plickers?	92
18.2	Main features of Plickers	92
18.3	How to Use Plickers	93
18.4	Pros and Cons of Plickers	94
18.5	Hints for Effective Use of Plickers	94
19	MeetingWords.	95
19.1	What is MeetingWords?.	95
19.2	Main Features of MeetingWords	95
19.3	How to Use MeetingWords	96
19.4	Pros and Cons of MeetingWords.	96
19.5	Hints for Effective Use of MeetingWords	96
20	Flipsnack	97
20.1	What is Flipsnack?	97
20.2	Main Features of Flipsnack	97
20.3	How to Use Flipsnack	97
20.4	Pros and Cons of Flipsnack	98
20.5	Hints for effective use of Flipsnack.	98

CHAPTER VIII

e-FLIP in Action

1	Lesson Plans and Exemplary Practices	99
----------	---	-----------

CHAPTER IX

Appraisal of the e-FLIP project

1	The e-FLIP Model	116
2	The e-FLIP Platform	118
3	Web 2.0. Tools	119

REFERENCES

CHAPTER I

Tomáš Milata

Facilitating E-learning for an Inclusive Pedagogy

Dear reader,

the tiny e-book of the e-FLIP project that you are about to read comprises every major aspect of the e-FLIP Teaching Model (Project result 1). The model is applied to Project Result 2 (e-FLIP Teacher Training Module) embedded in a Digital Platform (Project Result 3). This e-book (Project Result 4) is an attempt to summarize the whole project. It includes explanations and specific implications varying from vocational schools from three partner organizations as well as university, non-governmental organizations, and a public body.

The e-FLIP project was developed and supported within the framework of Erasmus+ of the European Commission. Based on the previous Erasmus+ cooperation, several reliable school and university institutions created a partnership that stands out in terms of the production of four Project Results, several inspirational and interesting Project Outputs, and dozens of exemplary practices. All these products of intellectual cooperation represent the most relevant outcomes of project activities within the environment of vocational schools / vocational training.

Previous research showed us that, for effective online teaching, it is a priority to develop teachers' / educators' digital pedagogical proficiency, specifically digital competency. Individual project results complement each other. While e-FLIP Model embraces the whole idea of the online flipped classroom pedagogical approach, the e-FLIP Teacher Training Module within the e-FLIP Digital Platform puts the entire approach into the practical arrangement of a lesson. This involves not only online teacher training on various web tools but also a completely online environment where students meet with their teachers.

The complexity of the e-FLIP project can also be used within real-life situations (natural hazards, pandemics, etc.), especially when objective reasons disable face-to-face / teacher-student contact in a classroom. The way the project handles the e-learning topic of educational development is one of the ways how to make progress in modern pedagogy with an emphasis on vocational education and training.

Project-added value includes teachers' good practices which reflect the actual adjustments and settings of the web tools according to their needs and specific school environments. This can be used also in other schools by an active part of the

school teaching staff that wants to make their lessons somehow more interesting, interactive, and useful for both sides of the learning process: teacher and students. Examples of lesson plans, instructional videos, and other important content are available in English as well as other project languages such as Italian, Turkish, etc.

Within this framework, the project supports digital pedagogical readiness in school education in two main aspects:

- the e-FLIP Teaching Model aims to support and improve VET teachers' and teacher candidates' digital pedagogical readiness,
- the e-FLIP Teacher Training Module allows VET teachers to be effective users of the e-FLIP teaching model and digital tools so that all the students, including disadvantaged ones, can benefit from online education and training services most efficiently.

Related to the project activities, this e-book of the e-FLIP project summarizes the entire pedagogical approach of online flipped Learning by directly using the project results, predominantly the e-FLIP Digital Platform. This enables every teacher to create his/her own online classroom and, above all, to monitor the whole educational process, measure the learning progress, and assess the educational activity of the students. The content is up-to-date and covers the vast majority of teacher tools that are used predominantly within online educational strategies. Personalized to every teacher and open to be used, e-FLIP project results can be used widely in educational systems across Europe. Systematic research, practical implementation of the project activities, and constant feedback from the side of piloted and partner schools are combined to form such a useful tool in the teachers' hands.

The project is an opportunity to enhance the pedagogic skills and knowledge of teachers concerning online teaching (the use of the Internet as a didactic tool). It is supposed that the upcoming situations, which we all have already experienced, might create another occasion where we can use such an interesting and interactive platform to teach online.

Despite targeting the project implementation to the environment of vocational schools / vocational training, the methods and partial instruments can also be applied in general education or at the level of primary schools – if the particular topic fits the methodology and vice-versa.

This publication will clarify to the reader all the questions referring to the online flipped classroom pedagogical approach as well as the creative inspirations that it provides.

May strategic and critical thinking be with you when preparing a perfect e-FLIP lesson, dear reader!

Tomáš Milata, Head Teacher of Pro Scholaris School

CHAPTER II

Melike Özyurt, Mehmet Fatih Özmantar, Mehmet Bardakçı and Emrah Cinkara

Journey to e-FLIP

e-FLIP is an educational approach based on the Flipped Learning model and created with the dynamics of online education in mind. This approach gives the e-FLIP Project its name to signify the development of the e-FLIP Teaching Model and its practical translation. The e-FLIP Teaching Model and its background will be explained in the following chapters. This chapter will provide an introduction to the needs analysis that led to the preparation of the e-FLIP Project, the objectives of the project, and the innovative outputs of the e-FLIP project.

1 Why do We Need e-FLIP?

After the Covid-19 pandemic spread in 2020, with the transition from face-to-face education to online education, it has become more vital for teachers to possess pedagogical digital competence to manage the learning and teaching process most efficiently and effectively. Digitalized models of education require teachers to develop digital competencies and also digital pedagogic proficiencies. Teachers should also have alternative strategies to include slow learners, foreign students, or disabled students in the learning and teaching process along with regular students. With the initiation of emergency online teaching, countries, and educational institutions had to quickly embark on online education. But were the teachers ready for this challenge? At this point, many factors threatened the successful realization of this change (Alam, 2020; Azar-Diaz, et al., 2019; Ghavifekr et al., 2016; Rosalina, et al. 2020). a significant number of these factors point to teacher training issues related to a lack of techno-pedagogical competencies, implementing a face-to-face teaching approach to online education, and a lack of training on online education during the preparation period. We will further develop these issues.

1.1 A Barrier to Effective Online Education: Lack of Teachers' Techno-pedagogical Competencies

In today's digital age, technology has acquired a much more important role in the field of education. However, the integration of technological developments

into learning and teaching processes is not as easy as expected. One of the most important reasons for this challenge is teachers' lack of techno-pedagogical competencies. Techno-pedagogical competencies refer to the ability to effectively incorporate technology into teaching practices and maximize its potential to improve learning outcomes (Niess, 2005). Many studies in the literature show that there is a positive relationship between teachers' techno-pedagogical competencies and teacher performance and student learning outcomes (Aditya, 2021; Hardman, 2019; Lyonga et al., 2021, Wu et al., 2016). Research by Saubern et al. (2020) reports that teachers with higher levels of techno-pedagogical content knowledge competence believe more strongly in the value of using technology to facilitate deeper thinking and learning and are more confident in using technology to support and facilitate deeper thinking and learning in and across curricular areas. In other words, teachers with higher levels of techno-pedagogical skills are more successful in providing students with meaningful learning experiences, engaging in collaborative work, and developing students' critical thinking skills in the teaching and learning process (García-Valcárcel & Mena, 2016; Herro, 2014). Teachers with deficiencies in techno-pedagogical skills have difficulty in effectively integrating technology into learning environments. This may lead to missed opportunities for interactive and engaging learning in teaching and learning processes. However, some studies in the literature show that teachers are not comfortable with using educational technologies for effective teaching (Aldhafeeri, Palaiologou, & Folorunsho, 2016; Barak, 2006; Gebremedhin & Fenta, 2015). This situation is due to various reasons. One of them is that teachers lack the necessary training and professional development opportunities to develop their digital competencies (Johnson, Jacovina, Russell, & Soto, 2016; Tran & Stoilescu, 2016). However, rapid advances in technology make it difficult for teachers to adopt new technological tools and pedagogical strategies, widening the skills gap. Teachers' limited access to educational technologies due to the lack of infrastructure in schools may also hinder their ability to implement and explore digital tools. Moreover, fear of technology, lack of confidence, and resistance to change are also common barriers that prevent teachers from integrating educational technologies into their teaching and learning. In addition, the lack of technology education in comprehensive pre-service teacher education programs and the inadequacy of professional development training on this issue can also be said to make it difficult to overcome this problem.

Developing teachers' techno-pedagogical competencies is an important step to improving the quality of online education. Thus, in online education environments, many components such as individualized education, active participation, and interactive classroom environment are included in learning and teaching processes. According to Asad et al. (2021), the development of teachers' techno-pedagogical competencies also ensures the effectiveness of the learning-teaching process,

teachers' productivity, and job satisfaction. Although achieving this creates an opportunity for each student to receive a quality education in accordance with the requirements of the age, the development of teachers in this regard requires the joint efforts of policymakers, teacher educators, and school administrators, especially teachers and prospective teachers.

1.1.1 Strategies for Developing Teachers' Techno-pedagogical Competencies

Developing teachers' techno-pedagogical competencies requires a comprehensive approach. In this context, research suggests four main strategies to help develop such competencies.

- a. **Training of Pre-service and In-service Teachers:** To provide a successful technology-supported education, teachers need to be familiar with educational technologies and integrate them effectively into their lessons (Ertmer & Ottenbreit-Leftwich, 2010; ISTE, 2018; Rebora, 2017). In order to achieve this, it is necessary to introduce emerging educational technologies to teachers in both teacher training and professional development processes and to provide qualified training opportunities for their effective integration into learning environments (Instelfjord, 2015).
- b. **School Culture Supporting Development:** It is possible to create a positive school culture in which teachers are open to learning, do not hesitate to experiment, are not afraid to take risks, and share good practices with administrators who encourage collaborative work instead of competition. In such a school culture, the targeted development and change can be realized through peer coaching activities, mentoring practices, and continuous professional development training opportunities.
- c. **Access to Resources and Infrastructure:** Improving the technological resources that schools have is an important element in developing teachers' techno-pedagogical competencies. This is because it provides teachers with access to important resources such as educational technologies, uninterrupted internet, and educational software that enable the integration of technology into learning environments.
- d. **Educational Policies and Financial Resources:** Educational policies and funding have two important roles in the integration of technology into education. One is to ensure that teachers are trained with techno-pedagogical competencies through pre-service teacher education and professional development policies. The other is to ensure that schools are technologically equipped for contemporary education. Both impose important responsibilities on policymakers and educational leaders.

1.2 Challenges Arising from the Application of Face-to-Face Teaching Approach to Online Education

Although the transition to emergency distance education during the Covid 19 pandemic period was tried to be provided quickly with the great devotion of educators, it caused many difficulties. Teachers, who had been trained according to the dynamics of face-to-face education, made an effort to realize their experiences in classroom environments in online learning environments. However, online learning environments have their own characteristics different from the dynamics of face-to-face education. Teachers' inexperience in online education and their habits in the face-to-face classroom environment caused various problems in online learning environments. These problems include limited interaction, ineffective use of technology, poor organization, inflexible schedules, and inadequate assessment. These issues are discussed in more detail below.

- a. **Limited Interaction:** Group work, simultaneous feedback, and active participation are among the important contributions of face-to-face education to educational environments in terms of interaction. It is also possible to utilize this interaction in online education processes. However, in online environments, it is necessary to use digital tools and teaching strategies specifically designed for virtual collaboration, participation, and interaction between students, teachers, and content (Dixson, 2010; Simonson et al., 2019). Failure to adapt these methods can lead to passive learning experiences, reduced student motivation, and failure to achieve instructional goals.
- b. **Ineffective Use of Technology:** There is a wide range of resources and technological tools that can be used for instructional design in online learning environments. However, teachers who have the training and habits appropriate to the dynamics of face-to-face education sometimes experience difficulties in using these resources and tools effectively. Unfamiliarity with learning management systems, Web 2 tools, multimedia resources, and digital forms of communication can cause teachers to fall short in creating engaging and interactive online learning experiences (Rosalina et al., 2020). Addressing these shortcomings of teachers will enable them to use the full potential of educational technologies in achieving the goals of teaching.
- c. **Poor Organization:** Teachers who are not sufficiently familiar with educational technologies may not be able to take advantage of their possibilities and contributions to achieving instructional goals. These challenges include failing to develop quality digital teaching materials, presenting resources and tasks to students in a disorganized manner, and failing to provide interaction and effective communication. However,

effective online education is only possible when educational technologies are used effectively to provide well-structured content and learning experiences that are aligned with instructional goals and enable interaction.

- d. **Inflexible Schedules:** One of the best benefits of online education is the opportunity for students to learn at their own pace, regardless of time and place. Accessibility and flexibility are the most characteristic features of online education. However, it is possible that teachers, acting out of the habits of their face-to-face educational experiences, may impose rigid schedules, or may work with rigid and tight timelines in situations where students are expected to accomplish tasks such as assignment submission. In online education, teachers are also expected to embrace flexibility in assignments, deadlines, and learning pathways to meet diverse student needs (Wright, 2014).
- e. **Inadequate Assessment:** Limiting the assessment methods to be used in online environments to the assessment methods used in the classroom may create some limitations in objectively assessing students' learning. Alternative assessment strategies such as online quizzes, discussion boards, multimedia projects, and collaborative assignments should be explored to be compatible with the nature of online education (Cirit, 2015; Gikandi et al., 2011). Neglecting formative assessment in online education may lead to a delay in determining students' achievement of learning goals and the efficiency of instruction and limited information on these issues.

Identifying these problems and finding solutions to overcome them is of great importance for improving the quality of online education and achieving teaching goals. In this context, it is seen as a necessity for teachers to design instruction in accordance with the nature of the learning environments they teach by employing instructional cognitive awareness strategies and improving themselves in areas where they feel deficient to provide quality learning experiences to their students.

1.3 Challenges of Teacher Education Process Based on Face-to-Face Practices in the Context of Online Teaching

Online education, which entered our lives intensively in the context of emergency distance education with the Covid-19 pandemic, has caused revolutionary changes in education with the flexibility and ease of access it provides. However, online teaching has also brought along some problems and limitations in current practices when compared to traditional face-to-face education. One source of these limitations can be defined as the fact that the teacher education process is primarily based on the dynamics of face-to-face education and that distance

education practices are not sufficiently addressed in this education. The details of the limitations of teacher education and experience in distance education are presented below.

- a. **Limited Pedagogical Preparation for Online Instruction:** The deficiencies in teacher training programs may be insufficient to prepare teachers to provide qualified online education in accordance with the requirements of the age. Because the focus of teacher training programs implemented until the transition to emergency distance education has been to train teachers for face-to-face education environments. These programs generally focus on the face-to-face education process and the practices in this process. The lack of specific training and pedagogical strategies for online teaching can hinder educators' ability to interact effectively with students, create effective instructor-student interactions, and create interactive and collaborative learning experiences (Petchamé et al., 2021). The 21st-century educational approach, especially in online education, requires teachers to develop a new skill set that includes digital tools, online communication, interaction, and collaboration in virtual environments.
- b. **Technical Competence and Digital Literacy Gaps:** Online education requires strong competencies in techno-pedagogical competencies. Unfortunately, teacher education programs do not prioritize the development of technical competencies required for online teaching (Canbazo lu et al., 2016; Rowston et al., 2020). Teachers lack the ability to use online platforms, multimedia resources, and communication tools effectively in online education. Teachers' techno-pedagogical deficiencies are an obstacle to overcoming the technical problems that may occur in the online learning environment and utilizing the resources available to increase student engagement and interaction and achieve instructional goals.
- c. **Limited Understanding of Online Student Engagement:** In classroom settings, teachers can easily measure student engagement through verbal interaction and body language. However, promoting and assessing student engagement in online learning environments, where teacher and student do not share the same tangible environment, requires a different approach. Teachers need to recognize and employ strategies that promote active engagement, collaboration, and self-directed learning in virtual classrooms (Swartzwelder, Murphy, & Murphy, 2019). Teachers who are not experienced in these issues may have difficulty in creating classroom dynamics in virtual classrooms.

- d. Challenges in Building Interpersonal Connections:** In contrast to the supportive nature of face-to-face learning environments, interacting and communicating in online learning environments can be challenging when specific strategies are not employed. Therefore, teachers need to adapt their strategies to proactively build and maintain positive relationships with their online students using a variety of communication channels and platforms.
- e. Limited Practical Experience in Online Instruction:** Teacher education programs are limited in terms of providing pre-service teachers with experience in distance education practices (Barbour, 2012; Canbazoglu Bilici, Guzey, & Yamak, 2016; Williams & Casale, 2015). Due to this lack of experience, teachers are unprepared to overcome the inherent challenges and adapt to the dynamics of online learning environments. This creates limitations in the quality and effectiveness of online education.

To overcome these limitations, it is imperative to prioritize comprehensive teacher education programs that equip educators with the necessary pedagogical strategies, technical competence, digital literacy, and online teaching skills. However, overcoming these challenges and limitations may also be possible through peer coaching or mentoring with experienced teachers. In addition, in-service training to support teachers' professional development on these issues can also make significant contributions to increasing the effectiveness and efficiency of the online education process.

2 Emergence of the e-FLIP Project: Rise of Ideas

As mentioned above after the outbreak of the Covid-19 pandemic, face-to-face education had to be stopped suddenly and teachers had to reshape their teachings based on the use of digital tools in a very short time. However, teachers' knowledge and experiences on this emergent issue were not enough to shape their teaching effectively. Besides, the education provided in teacher training institutions is limited to the needs and requirements of face-to-face teaching. Thus, digital education readiness has become a matter of concern for many educational institutions. For this reason, it has become necessary to improve in-service and pre-service teachers' digital competencies and help them develop a pedagogical perspective.

Teachers had to take part in the emergency remote teaching process without any training in digital competencies. As a consequence, they tend to transfer face-to-face education activities directly into online education. Nonetheless, the dynamics of face-to-face education and online education are totally different from each other. To ensure the success of education in this process, providing teachers with sufficient digital competence is a key factor: The latest OECD's TALIS study (2013) showed that 18% of trainers and teachers feel that they need more development

of ICT skills for teaching. This also shows that, for effective online teaching, it is a priority to develop teachers' digital pedagogical proficiency, specifically digital competency. In addition to this, after the COVID-19 pandemic, effective inclusive online teaching set the main agenda for policymakers, educators, administrators, teachers, parents, and students, especially in vocational education which has many practical implementations and was difficult to manage by online teaching.

So it is also vital to develop the digital skills of vocational school teachers in order to produce a more qualified education and minimize the limitations and risks of online teaching.

2.1 The Aims of the e-FLIP Project

e-FLIP project aimed to develop and implement a flipped classroom-based education model (e-FLIP Teaching Model) and a teacher training module (e-FLIP Teacher Training Module) embedded in an e-platform (e-FLIP Digital Platform) for teachers and teacher candidates to develop their pedagogical digital competencies. The e-FLIP Teacher Training Module incorporates four basic components:

- a. Lesson planning and preparation by the implementation of the e-FLIP Model
- b. Guiding principles for developing teaching/learning activities in digital environments.
- c. WEB 2 tools for developing teaching materials compatible with digital learning environments and guiding principles for effective use of such materials.
- d. Use of assessment and evaluation WEB 2 tools and guiding principles for effective use of these tools.

Within this framework, the project intends to support digital pedagogical readiness in school education in two main aspects:

- e-FLIP Teaching Model aims to support and improve in-service and pre-service teachers' digital pedagogical readiness;
- e-FLIP Teacher Training Module allows teachers to be effective users of the e-FLIP Teaching Model and WEB 2 tools so that all the students, including disadvantaged ones, can benefit from online education and training services most efficiently.

The e-FLIP project supports digital transformation plans at all levels of education and training through cooperation. It supports digital pedagogy and expertise in the use of digital tools for teachers (European Commission, Education

and Training, Resetting education and training for the digital age, 2020).

The e-FLIP project aims are coherent with the priorities of the European Commission such as “Addressing digital transformation through development of digital readiness, resilience and capacity” and “Supporting teachers, school leaders and other teaching professions” by:

- a. supporting digital transformation plans,
- b. producing innovative teaching and training modules,
- c. adaptation of Flipped Learning approach to online teaching,
- d. strengthening the digital skills of teachers and teacher candidates by adopting digital tools into the school curricula.

The e-FLIP project also aims at contributing to finding common solutions to a common education crisis caused by a global problem, the Covid-19 pandemic. Following this goal and in order to produce internationally usable, inclusive, and functional educational tools/products/strategies, the project needs to be carried out with the collaboration of different countries and with the contribution of several academics and policymakers with expertise in various fields so to ensure the consistency and “global” claim of a newly developed/ innovative educational platform and for its wider dissemination.

3 Innovative Results of the e-FLIP Project

With the e-FLIP project, we aim to produce four main results: e-FLIP Teaching Model, e-FLIP Teacher Training Module, e-FLIP Digital Platform, and e-FLIP e-Book. In this section, we provide details about the project results.

3.1 e-FLIP Teaching Model

e-FLIP Teaching Model was created as a pedagogical strategy. The target audience of this innovative project output is teachers, pre-service teachers, teacher educators, and students.

3.1.1 Scope of the e-FLIP Teaching Model

e-FLIP Teaching Model, based on Flipped Learning is suitable for the dynamics of online education. The model both provides a theoretically structured perspective on online teaching approaches and gives new ideas to teachers and practitioners who seek to perform online practices more effectively. It does not only serve to improve in/pre-service teachers’ digital competencies but also provides them with

a perspective that they can adapt their teaching to meet different student needs, and contributes to the development of digital pedagogic proficiencies. The model has the potential to offer significant opportunities not only for teachers but also for students. Increasing the efficiency of online education is vital not only for regular students but also for students with special needs and disadvantaged ones to get the most out of online education by providing an inclusive education model. In this frame, the e-FLIP Teaching Model has an inclusive pedagogy both for regular students and students with special needs as well as teachers with different levels of techno-pedagogical competencies.

3.1.2 Methodology Followed while Developing the e-FLIP Teaching Model

To develop, test, and propose a well-working/functional e-FLIP teaching model, there was a collaboration among teachers who are the practitioners, academicians who provide theoretical support, policymakers who contribute to the implementation of the model, and field experts who provide their feedback. During the development of the model, a critical literature review approach was adopted in determining the essential features of the Flipped Learning approach to adapt the e-FLIP Teaching Model. The data from reports, reflections, experiences, and feedback were examined through content analysis techniques. All the insights gained in analyses were used to propose the initial form of the e-FLIP Teaching Model and its finalization.

In this context, the steps followed in developing the model were as follows:

1. literature review of the Flipped Learning approach,
2. deriving the important features relevant to the effective use of Flipped Learning teaching,
3. examining online teaching practices relevant to Flipped Learning,
4. examining digital tools for task design, material development, and assessment,
5. determining general assumptions and principles of the e-FLIP Teaching Model,
6. blending Flipped Learning approach with digital tools in digital environments,
7. suggesting an initial form of the e-FLIP Teaching Model,
8. testing e-FLIP Teaching Model in actual settings,
9. finalizing the e-FLIP Teaching Model.

3.1.3 Innovative Dimension of the e-FLIP Teaching Model

There are a limited number of training models for use in online education. Therefore a functional and innovative online education model for planning and delivering online teaching in digital environments and digital tools is needed. At this point, Flipped Learning has been identified as the starting point for this innovative model. Flipped Learning is a new approach that has been applied by teachers and educators in recent years. This approach supports the idea that students get ready for the lessons by using digital tools to increase the effect of face-to-face teaching. However, this model has not been used for planning an entire online teaching. With this project, the Flipped Learning model is transformed into a fully digital model that includes digital tools for every phase of a lesson such as planning the lesson and tasks, developing/adapting materials, and assessment.

3.2 The e-FLIP Teacher Training Module

e-FLIP Teacher Training Module was created as an open-access training module. The target audience of this innovative project output is teachers, pre-service teachers, and teacher trainers.

3.2.1 Scope of the e-FLIP Teacher Training Module

Following the development of the e-FLIP Model, it is important to present how this model could be put into actual practice because only in this way teachers have the opportunity to see how the model works. Another important point is that there was no widespread training module to improve teachers' competencies in inclusive online teaching. Within this context, the e-FLIP Teacher Training Module is developed in order to enable teachers to recognize the components of the e-lip model and to enable them to recognize digital tools (WEB 2) that may help them conduct inclusive online training.

3.2.2 Methodology Followed While Developing the e-FLIP Teacher Training Module

Preparing a teacher training module requires a consideration of the critical features of professional development programs for teachers. For such programs to be effective, there are several features that need special attention:

- a. allocation of time (How much time is required for task completions?),
- b. clarification of the focus,
- c. relevance to teachers' actual needs (Does the content of training respond to

- teacher needs in actual classrooms?),
- d. concretizing the theoretical discussions and suggestions (Are the ideas shared with teachers in training exemplified to achieve a better grasp?),
 - e. necessary regulations (Are teachers provided with clear “how to” instructions for after-use?).

All these features were taken into consideration and these were used to structure the module. The data obtained from actual classrooms, feedback, and participant evaluations produced for refinement purposes were examined. The results of the analyses were used to improve the module and give its final shape. In this context, the steps followed in developing the model are as follows:

- a. creating examples of planning and preparation components of the e-FLIP teaching approach,
- b. determining digital tools with alternatives that could be used for teaching activities and the development of teaching materials and assessment purposes,
- c. preparing the suggested digital design of the module,
- d. implementing the e-FLIP Teaching Model in order to test and exemplify its use in actual settings,
- e. critically evaluating the suggested model for refinement purposes,
- f. preparing a user guide for the e-FLIP Teaching Model and for the digital tools for the components of the e-FLIP teaching.

3.2.3 Innovative Dimension of the e-FLIP Teacher Training Module

The e-FLIP Teaching Model is developed in a context where digital environments and tools are used for online education. Transferring this model into a teacher training module is an innovative attempt. Instead of just suggesting a model, supporting teachers by showing sample practices guiding them on how to use it, and how to plan their lessons is an innovative work. Another innovative aspect of the module is that it also includes sample practices of inclusive online education. Moreover, the sample practices done in different countries that are used in the formation of the content increase the usability of the module in teacher education in different countries and cultures. In addition, practical examples with disabled students and a multicultural learning environment allow the module to be used in the education of teachers working in different learning environments including school education. All these dimensions reveal the innovative potential of the model.

3.3 The e-FLIP Digital Platform

e-FLIP Digital Platform was created as an open-access digital platform. The target audience of this innovative project output is teachers, pre-service teachers, and teacher trainers.

3.3.1 Scope of the e-FLIP Digital Platform

The e-FLIP Digital Platform is constructed by installing a Moodle learning management system. Moodle is the most commonly used open-source learning management system which is used all around the world. It is a user-friendly platform in which the e-FLIP Training Module is embedded. With the online digital training module, it is possible for a wider audience of teachers to get to know the e-FLIP teaching approach, access application examples, and acquire new ideas to plan their teaching effectively. In addition, teachers have the opportunity to refer to the online module whenever they need it and to deepen their ideas by reviewing shared application examples over and over.

3.3.2 Methodology Followed While Developing the e-FLIP Digital Platform

This platform is formed by configuring the e-FLIP Training Module in a digital environment which is created to be used in teacher training. e-FLIP Digital Platform includes real practice samples of the e-FLIP Teaching Model and it also includes necessary explanations in the relevant sections about the principles that need to be considered in order for the e-FLIP Teaching Model to be effective. In order to ensure the effective use of the platform for teacher training purposes, the e-FLIP Teaching Model is schematized and a user guide is provided.

While creating the concept map and schemata of the e-FLIP Digital Platform, a brainstorming approach is adopted. Group interviews with the project team were carried out in order to come up with the appropriate segmentations and structures. For the visual design and preparation of the digital platform, expert technical support was taken. In examining the feedback from the partners and users, a content analysis technique was used. The result from the analyses of feedback and suggestions was used to introduce changes to the initial version and also to finalize the e-FLIP Digital Platform.

In this context, the steps followed in developing the model are as follows:

- a. Creating a concept map and schematizing the e-FLIP Training Module appropriate to the digital platform.
- b. Designing the platform in terms of segmentation, structure, and interactive hyperlinks performing visual design.

- c. Embedding the e-FLIP Teacher Training Module into the platform.
- d. Explaining appropriate tools of the module.
- e. Embedding the critical features and principles of the e-FLIP Teaching Model with examples.
- f. Linking appropriate exemplary practices of the e-FLIP Teaching Model.
- g. Producing an initial version of the digital platform.
- h. Evaluating the digital platform.
- i. Revising the platform based on feedback.
- j. Piloting and testing the platform for teacher training.
- k. Analyzing the feedback from the actual use of the platform and finalizing the e-FLIP Digital Platform.

3.3.3 Innovative Dimension of the e-FLIP Digital Platform

Teacher education is generally constructed based on traditional face-to-face teaching models and online training modules are limited. Providing teacher training on a digital platform in a modular structure based on a certain model is one of the rare innovative practices. The e-FLIP Training Module includes the content to be used in teacher education. However considering the possible problems in conducting face-to-face teacher training, it became necessary to embed this teacher training module on a digital platform. In addition to this, it is thought that teacher training, regardless of time and place, can reach wider audiences by making the module accessible to teachers on a digital platform. It can be said that transforming the developed e-FLIP Training Module into an open-access digital platform is one of the most important innovative dimensions of the e-FLIP Project for publicity of the e-FLIP Teaching Model in school environments.

3.4 The e-FLIP e-Book

The e-FLIP e-Book was created as an open-access education resource (OER). The target audience of this innovative project output is teachers, pre-service teachers, and teacher trainers.

3.4.1 Scope of the e-FLIP e-Book

The e-FLIP e-Book is the book that you are reading now. This book is written for sharing and explaining the theoretical background and the development process of the e-FLIP Teaching Model to provide new ideas to the ones who want to develop alternative models and will carry out studies in this field. Additionally, it can be said that teachers, teacher trainers, and student teachers may develop a holistic

view by relating theory with practice through this e-Book, and also will benefit from it in their personal and professional development.

3.4.2 Methodology Followed While Writing the e-FLIP e-Book

In academic writing, there is a general approach applicable to any research report, including books, to come up with a high-quality product. This approach advises that any piece of the academic report should go through the following five stages: determining and knowing the topic, reading and researching, outlining and planning, starting to write and drafting, reviewing and editing. In our efforts to produce the e-Book, all these stages are considered and division of work and task sharing among the e-FLIP Project partners are performed.

3.4.3 Innovative Dimension of the e-FLIP e-Book

The e-FLIP e-Book is a reference of the e-FLIP Teaching Model for academicians, practitioners, policymakers, and educators. It is also thought that the examples showing the inclusion of disadvantaged students into digital tools and environments will contribute to the effective planning and structuring of online implementations. Additionally, examining the e-Book does not require permanent access to the internet; the target audience can download and use it offline. The e-FLIP e-Book is prepared and shared nationally and internationally. As mentioned before, since it offers new ideas that can affect online education in different contexts, the transferability potential of the e-Book is quite high.

CHAPTER III

Mehmet Bardakçı, Emrah Cinkara, Melike Özyurt and Mehmet Fatih Özmantar

Background to Flip Teaching

1 Flipped Learning

In recent years, educational practices have changed from teacher-centered teaching to student-centered learning. With the advancements and innovations in technology such as Web 2.0 tools, more technologies have been integrated into education, and various learning modes have provided different and personalized learning opportunities to students (Li et al., 2014). At the beginning of the 21st century, two chemistry teachers, Jonathan Bergmann and Aaron Sams, applied a contemporary approach to teaching in their classes in the USA and named it Flipped Learning. Flipped Learning, also known as Flipped Teaching or the Flipped Classroom model, has gained recognition and popularity as an innovative approach to education. The Flipped Classroom is a well-recognized learning mode that enables effective practice and interactions among teachers and students in the class by switching the in-class instructional time and out-of-class practicing time (Lai & Hwang, 2016). This chapter aims to provide a brief introduction to the history of Flipped Learning, its evolution over time and its impact on classroom dynamics.

2 The History of Flipped Learning: Early Attempts of Integrating Technology in Education

The ideas and different teaching practices that helped the development of the Flipped Learning Model have a history of 30 years (Ağırman & Ercoşkun, 2022). Even we can say that the roots of Flipped Learning can be traced back to 1960s when the researchers as well as practitioners attempted to integrate technologies into education. The use of computers as a teaching tool first started in the late 1950s and the topic of using computers in education became popular for conferences in the 1960s (Karl, 2003). Several acronyms were used for the integration of computers in education such as computer-assisted instruction (CAI), computer-based education (CBE), and computer-assisted learning (CAL). In 1960, Donald L. Bitzer introduced

the PLATO system, an acronym for Programmed Logic for Automatic Teaching Operation. This system was an early example of a computer-assisted learning system that allowed students to learn at their own pace (Sugar & Brown, 2008). After the introduction of technology into education several educators and research groups have started to work on the design of technology-based teaching models.

3 The Rise of Online Learning Environment

The early attempts of computer-assisted instruction were limited to software and prepackaged programs and the users did not have a chance to interact or change the content of the materials. With the advent of the internet in the 1990s and Web 1.0, e-learning took its place in education, and educational institutions and organizations started designing and offering online platforms to deliver their course contents asynchronously. Known as the first and most primitive period of the Internet, the Web 1.0 period can also be defined as the period in which users only watch the Internet and cannot create their own content. In this period, which experts define as the “read-only web”, the internet was used as an online library consisting of fixed content and one-way information flow from content providers to the users. The role of the average internet user was limited to reading the information presented on a relevant digital software or platform. In this period when HTML-based company web pages were common, the users did not have the authority to add or comment on any content (Badgers, 2021). Therefore, we can say that early e-learning attempts had also some limitations such as a lack of interaction and personalization. However, both computer-assisted learning and asynchronous online platforms provided learners with opportunities to learn at their own pace and practice as much as they wanted.

Like CAI, e-learning is also called Web-based learning, online learning, Internet-based learning or distributed learning. There are many definitions of e-learning in the literature but Horton (2012) simply defines e-learning as the use of e-technologies to create learning experiences. E-learning includes educational games and simulations, mobile learning, social learning, virtual classroom courses, and standalone courses. Internet Communication Technologies (ICT), with the spread of smartphones, tablets, and apps brought the use of technology closer to education.

New teaching models and techniques have been developed following the introduction of e-learning and Web 2 tools in education. Blended learning, for example, was proposed by Bonk and Graham in the early 2000s. It offered a hybrid model that combined the best aspects of classroom and online learning. The flexibility of the online resources and the intense face-to-face interaction made for an immersive learning experience.

Blended learning, also known as hybrid learning, technology-mediated instruction, web-enhanced instruction, or mixed-mode instruction, is an educational approach that combines instructional materials prepared through technology and web tools (Martyn, 2003). Several definitions for blended learning were proposed by different scholars (Garrison & Vaughan, 2008; Lim, Morris, & Kupritz, 2006; Singh & Reed, 2001; Smith, 2001). The common point in these definitions is that blended teaching applies different delivery modes by integrating online and face-to-face education to maximize student success.

Blended learning has provided several advantages over not only traditional classroom instruction but also fully online courses by offering flexibility in terms of time and location, and allowing students to access content at their convenience. Additionally, when considering individual differences, it provides personalized learning experiences through the integration of multimedia resources, interactive activities, and individualized feedback (Garrison & Vaughan, 2007).

The spread and development of educational technology tools have further enhanced the implementation of blended learning. Learning management systems (LMS), like Moodle, have enabled educators to organize course contents and teaching materials, enable online discussions, and monitor learner progress (Bonk & Graham, 2012). Having become popular during the Covid-19 pandemic, video conferencing tools, such as Zoom and Microsoft Teams, revolutionized synchronous online interactions, making virtual classrooms more dynamic.

Flipped Learning is a method derived from Blended Learning. After a brief historical overview of the use of educational technologies, the following part will deal with Flipped Learning.

4 Flipped Learning

Flipped Learning, proposed by Jonathan Bergmann and Aaron Sams, is also known as the flipped classroom model or inverted classroom. Jonathan Bergmann and Aaron Sams, chemistry teachers at Woodland Park High School, Colorado, tell how Flipped Learning was born in their book “Flip Your Classroom: Reach Every Student in Every Class Every Day” (Bergmann & Sams, 2012). They realized that their students regularly missed their classes because of sports and activities and they started to think and discuss how they could solve or overcome this problem. In the spring term of 2007, they started recording their live sessions. Then the students watched and loved the recorded lectures and these lectures were posted online. They received many positive and reinforcing feedback from all over the world. They were invited to several online teaching forums and they started to share their links with other teachers some of whom used them to plan their own lessons and some of the naive ones also used to improve themselves. Later, one day they decided

to prerecord their lectures and give them as homework. Students would watch the videos before coming to class so that they could use the entire class time for explaining the concepts that students did not understand and practice.

As the model spread over the world, more teachers started using the Flipped Learning model in different fields and grade levels, reporting that they and their students all benefitted much from the model they applied (Roach, 2014). Advancements in technology and new educational tools such as user-friendly video creation tools, interactive tools, and learning management systems played a significant role in the expansion of Flipped Learning.

5 Flipped Learning and its Application

In traditional classrooms, students are often introduced to the course content for the first time during face-to-face class time. However, in a Flipped classroom, students are given the course content before the classroom as homework, often through pre-recorded videos or online resources (Strayer, 2012). In other words, direct instruction is delivered through videos individually. By completing this pre-class homework students come to class prepared and ready to participate actively in student-centered activities carried out in the class.

The Flipped Learning model is often linked with Bloom's taxonomy. In traditional classrooms, most of the class time is allocated for lecturing and information-gathering activities where students are often passive. These activities are generally related to lower levels of Bloom's taxonomy -remembering and understanding. With Flipped Learning, these lower-level activities have moved out of the classroom leaving space for higher-order cognitive domain activities during class time. The following figure shows the difference between traditional and Flipped Learning in terms of Bloom's taxonomy:

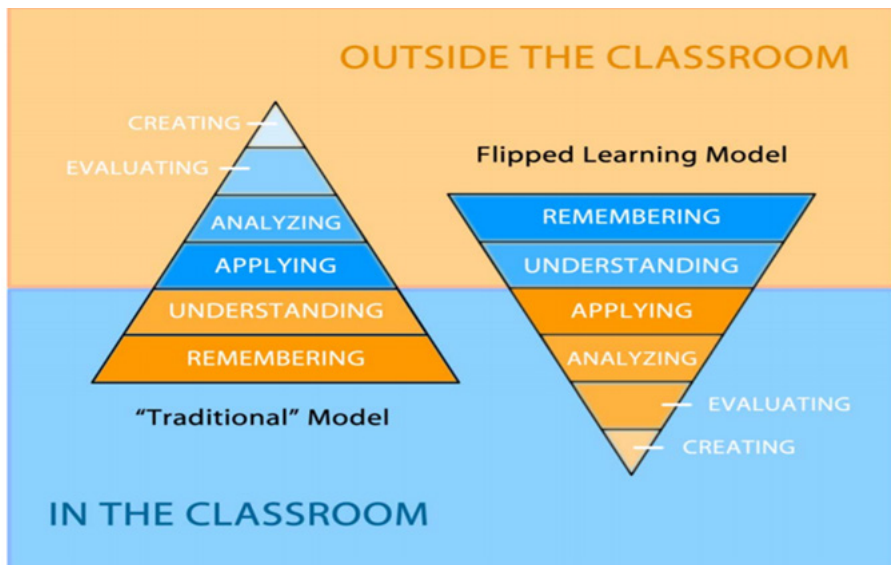


Figure 1. Difference between focus class times in the traditional classroom and flipped classroom

Talbert (2019, p. 4) explains the above diagram as: Flipped Learning literally inverts the focus in terms of Bloom's taxonomy, so that the bottom parts of Bloom are reserved for student self-instruction through structured activities and class time is focused on the upper parts of the taxonomy, the most complex tasks, which are best served by having a rich social environment in which to work (i.e. class time). In the Flipped Learning model, the time spent in the classroom is completely restructured. Bergmann and Sams (2012, p. 15) compare the class times as in next table:

Traditional Classroom		Flipped Classroom	
Activity	Time	Activity	Time
Warm-up activity	5 min.	Warm-up activity	5 min.
Go over previous night's homework	20 min.	Q&A time on video	10 min.
Lecture new content	30-45 min.	Guided and independent practice and/or lab activity	75 min.
Guided and independent practice and/or lab activity	20-35 min.		

Table 1. Comparison of Class Time in Traditional versus Flipped Classrooms

As seen in Table 1, in a flipped classroom, still some time (about 10 min.) is allocated for question and answers on the video to prevent misconceptions then most of the class time (75 min.) is allocated for active learning activities, such as discussions, problem-solving, and hands-on exercises.

The summary of Bergmann and Sams' (2012) guidelines for Flipped Learning is as follows:

- 1. Planning the lesson:** Determine the learning objectives and identify the specific topics or skills that you want your students to learn and decide whether a video is an appropriate instructional tool to accomplish the educational goal of the lesson. Please note that flipping is not just preparing a video.
- 2. Recording the video:** Record the lectures or create multimedia resources that cover the course content. Keep the videos concise and engaging, typically ranging from 5 to 20 minutes.
- 3. Editing the video:** The editing process is time-consuming, but it allows the teacher to remove mistakes instead of rerecording an entire video. It also allows the teacher to highlight and reinforce what has been said in the recording with a visual cue that can aid in student understanding.
- 4. Publishing the video:** Upload the video and other relevant materials to a Learning Management System (LMS), online platform, or any other accessible platform. Be sure that learners can easily access and navigate the platform.
- 5. Assign homework:** Assign students to watch the video lectures or study the materials you prepared before coming to class. With this, they will learn the content at their own pace.
- 6. Class time - active learning:** Use class time for activities such as discussions, group work, problem-solving exercises, and hands-on demonstrations related to the content. Provide guidance, clarification, and feedback as students engage in these activities.
- 7. Assess students' understanding:** Formative assessment strategies could be used to monitor students' comprehension and progress. Quizzes, group presentations, individual projects, or class discussions can be useful as monitoring activities.
- 8. Encourage student engagement and participation:** Try to create an environment that promotes active participation and engagement. Encourage them to ask questions, share their ideas, and foster collaboration and cooperation in the class.
- 9. Provide support:** Some students may need extra support or clarification.

Offer them some opportunities like office hours, online forums, and individual or small-group support.

10. Reflect: Continuously reflect on Flipped Learning. You can get feedback from your students and make changes or modifications when needed.

6 Advantages of Flipped Learning

In the last decade, various studies have concluded that Flipped Learning can offer several benefits. Akçayır & Akçayır (2018) carried out a comprehensive literature analysis on the Flipped Learning model and presented the advantages of this model under six inductive categories: (1) learner outcomes, (2) pedagogical contributions, (3) dispositions, (4) interaction, (5) time efficiency, and (6) other.

- **Learner outcomes:** Flipped Learning model improves learning performance, learner engagement, learner satisfaction, and motivation. Besides, it increases knowledge, develops critical thinking, promotes creativity, and also improves learners' application and ICT skills.
- **Pedagogical Contributions:** It provides flexible learning and enables individualized learning. It enhances enjoyment, thus students come to class better prepared. Because of these individualized and flexible learning opportunities; it fosters learner autonomy.
- **Time Efficiency:** By applying this model, teachers can use class time more efficiently and have more time for practice.
- **Dispositions:** Both teachers and students have positive perceptions about Flipped Learning. Studies also reported positive feedback and attitude on the part of students.
- **Interaction:** Since the model allows more time for practice and discussions during the class, it provides more opportunities for student-teacher and student-student interaction.
- **Other:** Although less anxiety, cost effectiveness and students can adapt quickly are other mentioned advantages, there are few studies and much research is needed.

7 Criticisms of Flipped Learning

Although Flipped Learning has become popular in all fields of education with its pedagogical and practical benefits, it also received some criticisms. These criticisms take several forms:

- *Technology-related problems:* The first and main criticism about Flipped Learning is the requirements of necessary infrastructure (Porcaro et al., 2016) and the inequality to access technology (Chen et al., 2015). However, during the Covid-19 pandemic, countries tried to support students to overcome this problem by providing them with free internet or tablets. Another problem related to the technological competencies of both teachers and students since it requires the use of technology, such as video creation tools or learning management systems (Leo & Puzio, 2016).
- *Student engagement and interaction:* Although Flipped Learning increases interaction in face-to-face class time, Fulton (2013) argues that there is a lack of teacher contact in the preparation stage of Flipped Learning. Similarly, Johnson (2013) states that students cannot ask any questions when they do not understand any concept.
- *Monitoring:* Students may not watch videos or complete the activities as instructed, and during class time they cannot discuss the subject in depth (Taylor, 2015). Therefore, monitoring is important and teachers should diagnose the problems about what students are not learning (Logan, 2015).
- *Lack of collaboration, group work, or social learning:* Like interaction, Flipped Learning may leave space for collaboration and group work activities in class; however, it lacks providing collaboration activities outside the class. Talbert (cited in Logan, 2015) criticizes the Flipped Learning model for making students feel alone in the learning process.
- *Workload:* For teachers, preparing materials, planning the sequence of the materials, and managing the tasks are time-consuming, and increase their workload (Akçayır & Akçayır, 2018). Similarly, for students, it is also time-consuming and it increases their workload. Thus, they have adaptation problems and they show resistance to change (Chen et al. 2014).

It's important to note that despite these criticisms, Flipped Learning has also provided numerous advantages in educational practices. Addressing these concerns through thoughtful planning, access to resources, using technology to monitor, adding collaboration, ongoing support through interaction outside of the class, and pedagogical adjustments can help mitigate these challenges and improve the overall effectiveness of Flipped Learning in different educational contexts.

CHAPTER IV

Emrah Cinkara, Melike Özyurt, Mehmet Fatih Özmantar and Mehmet Bardakçı

e-FLIP Learning

1 Flipped Learning: a Paradigm Shift in Education

To meet the demands of the digital age, new methods of teaching and learning are continuously being invented, and education is no exception. One such innovative pedagogical idea that has drawn a lot of attention is Flipped Learning. It is a paradigm shift in education, challenging conventional classroom rules and redefining the responsibilities of students and teachers. In this model, the standard instruction sequence is reversed, and students interact with instructional material outside of the classroom, generally through video lectures or web-based resources, while class time is devoted to collaborative activities, discussions, along with higher-order thinking tasks. Traditional Flipped Learning is based on the concept that teachers produce a video lesson about the lesson and discuss it with the students. Before students arrive at the class, they view the prepared video lectures and come well-prepared for the lesson. Therefore, it aims to help the student to realize the gains at the level of understanding of knowledge, thanks to the video, and also to realize the gains which they cannot do by themselves for example analysis, synthesis, and production, that are higher level skills, so the teacher can be more effective in the classroom. To better view the Flipped learning Model, please see the below table illustrating the comparison of face-to-face learning and traditional Flipped Learning Models concerning Bloom's Taxonomy:

Bloom's taxonomy field	Level	Model	Agent
Create	Higher	F2F in class	Student and teacher
Evaluate	Higher	F2F in class	Student and teacher
Analyze	Higher	F2F in class	Student and teacher
Apply	Lower	Flipped	Student
Understand	Lower	Flipped	Student
Remember	Lower	Flipped	Student

Table 2. e-FLIP in Bloom Taxonomy

This model assumes that the student can achieve course objectives in low-order thinking skills and it also might be preparation for class. Thus, teachers create video content to show the topic and distribute the video to students to enable them to watch it at home as often as they desire prior to coming to class. Therefore, teachers have much more chances to produce activities to do in the classroom to develop high-order thinking skills in Bloom's Taxonomy.

2 The Rise of e-FLIP Model

As education adapts to the needs of the digital era, innovative pedagogical models have developed to change traditional teaching and learning methods. One particular model which has gained traction is the abovementioned Flipped Learning, which has transformed classroom dynamics and educational methods. Nevertheless, educators have realized the need to further refine and improve the Flipped Learning model, resulting in the development of the e-FLIP Learning Model. An extension of the traditional Flipped Learning model, the e-FLIP Model combines the basics of Flipped Learning with the power of online platforms and technology, which is represented by the initial "e" at the beginning of the model title: e-FLIP. The newly proposed model takes advantage of the digital age and utilizes electronic resources and web-based tools to enhance the learning experience. The goal of e-FLIP Learning, a collaborative initiative funded by the Erasmus+ program, is to address the difficulties that students and teachers face in the Flipped Learning system while providing creative solutions via electronic means.

The e-FLIP project, a European initiative, is designed to promote the adoption and implementation of e-FLIP Learning throughout academic institutions (<http://www.e-FLIP-erasmus.eu>). By giving educators advice, best practices, and tools for incorporating e-FLIP Learning into their teaching practice, the project aims to improve the flipped classroom experience.

In the e-FLIP Model, teachers create and distribute video content that students interact with outside of the typical classroom setting using digital technologies and online platforms. These films give the students foundational knowledge and comprehension of the topic matter and are meant to serve as a pre-lesson. Utilizing electronic resources, teachers can supplement the video content with interactive features, multimedia, and a variety of other engaging aspects to promote active learning.

The e-FLIP Model places a strong emphasis on the value of collaboration, monitoring, and engagement in e-FLIP Learning. Through interactive video content, students participate actively in the learning process by answering questions and taking part in quizzes or evaluations that are built into the video recordings. Students are able to collaborate online regardless of where they are by participating

in discussions, team projects, and peer-to-peer interactions.

Educators can develop a dynamic and engaging learning environment that stretches beyond the physical walls of the classroom by embracing the electronic elements of e-FLIP Model . The project offers useful insights and resources to help educators in implementing e-FLIP Model and fostering student-centered and technology-enhanced learning experiences.

e-FLIP Learning Model continues to build on the traditional pillars of Flipped Learning while dealing with a few of its limitations and opening up new possibilities for learning and teaching. In the e-FLIP Model, teachers use technology to produce video content that is distributed to students electronically through appropriate web tools. Then students are able to watch these videos at their very own pace and convenience, preparing them for in-depth learning as well as for the extension activities which occur during virtual or face-to-face class periods.

The electronic side of the e-FLIP Model adds additional dimensions to the Flipped Classroom experience. In e-FLIP Learning, interactivity, collaboration, and monitoring play a significant role in transforming the learning process and facilitating deeper interaction among students. Students can interact with the video content through different forms of interaction including clickable elements, quizzes, and reviews. Regardless of where they are located, collaboration is promoted through online platforms that allow students to take part in discussions, work on team projects, and share information.

The principles, elements, and practical implementation techniques of e-FLIP Learning will be examined in greater detail in the parts that follow, drawing on the knowledge and insights gained from the e-FLIP project.

3 The e-FLIP Model

The e-FLIP Model, a revolutionary take on conventional Flipped learning, integrates technology and web-based platforms to give teachers and students a greater learning experience. The e-FLIP Model was developed as a component of the e-FLIP project, an international collaboration funded by the Erasmus program that aimed to address the drawbacks of conventional Flipped Learning while also utilizing the power of technology-based data to create a much more interactive and stimulating learning environment.

At its foundation, e-FLIP keeps the fundamental concepts of traditional Flipped Learning. Fundamentally, the concept entails flipping the traditional sequence of instruction by making it possible for students to interact with instructional material outside of the classroom, usually through video lectures or web-based resources. This pre-lesson material aims to lay a strong basis for extended learning and growth exercises that take place in real-world settings or online.

What distinguishes the e-FLIP Model from other learning models is its emphasis on Flipped Learning. e-FLIP blends technology and online platforms to create new opportunities for student involvement and personalized learning in the Flipped classroom environment.

This model is all about interactivity. Students turn into active participants in the education process, by using interactive video content, and are no longer passive recipients of information. You can enhance the videos with interactive features like clickable hotspots, quizzes, simulations, embedded assessments, and feedback so that students can actively participate in the learning process. This interactive aspect enhances the student's engagement, encourages critical thinking, and promotes a greater understanding of the subject.

Students may interact, cooperate, and exchange ideas online regardless of where they are. These tools enable students to participate in engaging debates, work on group projects, and exchange information by supporting a variety of collaboration tools such as chats, discussion boards, and shared document editing. Collaboration learning experiences enhance the overall learning experience by fostering teamwork and communication skills along with a feeling of community among students.

The e-FLIP Model has a key component in monitoring student progress and understanding. The monitoring tools available on the e-FLIP environment allow teachers to keep track of student engagement, progress & achievement. Analytics and data dashboards allow teachers to obtain insights into student activity, spot trouble spots as well as provide appropriate interventions and support. This monitor enables teachers to tailor instruction to the individual needs of their students and ensure that they are getting the most out of their e-FLIP learning experience.

As demonstrated by the e-FLIP project, the e-FLIP Model provides an extensive framework for the implementation of technology-enabled Flipped Learning for educators. The e-FLIP Model allows educators to develop a learner-centered and dynamic environment that encourages active engagement, collaboration, and customized support by embracing the electronic aspects. The e-FLIP project offers educators useful tools, best practices, and direction for adopting the e-FLIP Model, fostering an innovative culture, and enhancing the learning environment for both teachers and students.

3.1 Components

According to the e-FLIP paradigm, teachers must give their students opportunities for active learning that are vital to their success. In the model, the lesson planning process consists of three stages: Pre- Lesson, While- Lesson, and post-lesson. 12 stages guide students through the planning and execution of e-FLIP lessons within these stages.

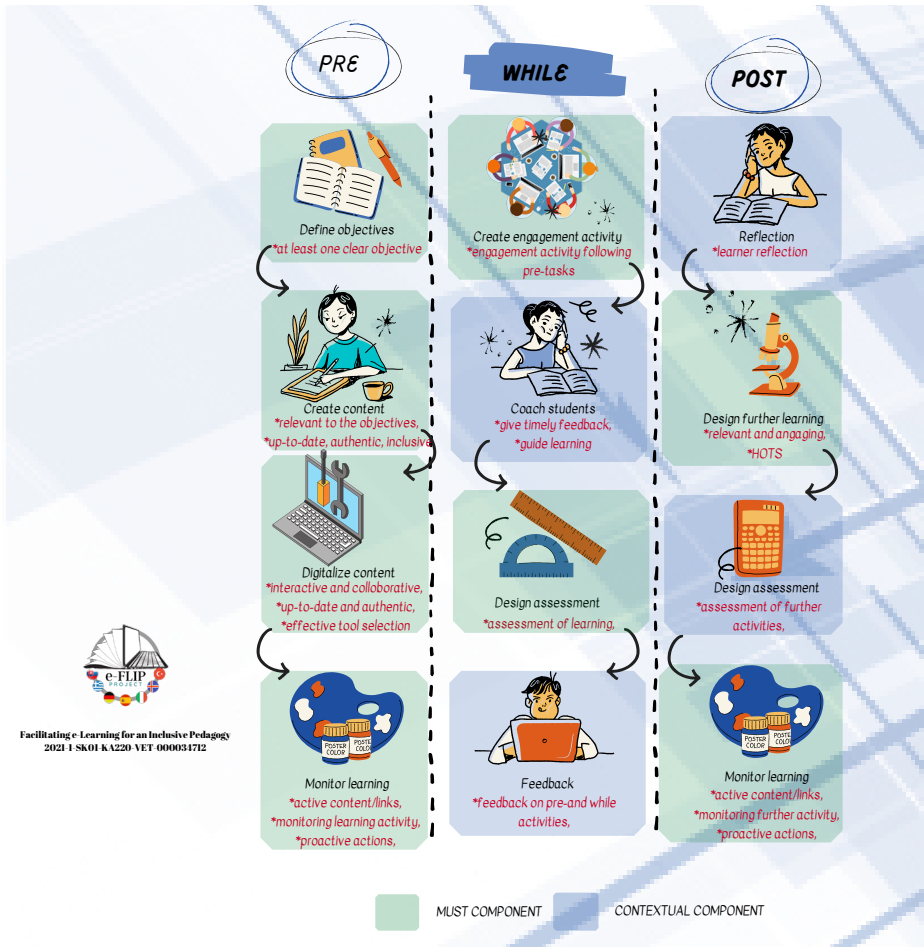


Figure 2. Stages which guide students through the planning and execution of e-FLIP lessons

3.1.1 Pre-Lesson Stage

- **Define Objectives:** Teachers set clear learning objectives for their lessons in this stage. These objectives will guide the selection and development of the video content which will be shown to students. Objectives align with the curriculum and describe the knowledge and skills that students are required to acquire.
- **Create Content:** Teachers determine the content to be covered in the video,

based on the defined objectives. They develop a video scenario that presents the subject matter effectively using multimedia elements, visual aids, and interactive features to improve student engagement and understanding.

- **Digitalize the Content:** At this point, teachers record what they have created in video and digitize it for distribution online. The video is posted to a preferred online platform where students are able to view it easily. To support student learning, teachers may also supply additional resources or additional materials together with the video.
- **Monitor Learning:** At the end of this stage, teachers evaluate the online platform where video content is presented and keep track of student activity and engagement. It allows them to keep track of student progress, collect data on student interactions with the video and related materials and view analytics. Monitoring helps teachers make educated decisions about instructional adjustments, measure student engagement, and identify areas of difficulty.

3.1.2 While-Lesson Stage

- **Create Engagement Activity:** Teachers design and implement engaging activities that encourage students to engage in higher-order thinking abilities and active engagement. These kinds of activities could take the shape of talks, group projects, dialogues, or assignments that require problem-solving. The objective is to foster critical thinking, in-depth material understanding, and student interaction.
- **Coach Students:** Students are being coached by their teachers throughout this phase as they participate in numerous learning activities. Teachers act as facilitators to aid students in understanding the topic and respond to any queries brought up in the video. Teachers encourage students' autonomy and metacognitive skills by acting as mentors and facilitators.
- **Design Assessment:** Teachers evaluate the growth and learning of their students. These tests might be either formative or summative, and they might contain assignments like quizzes, projects, presentations, or performance evaluations. The evaluation is in line with the learning objectives and offers insightful commentary on the students' accomplishments and potential growth areas.
- **Feedback:** Teachers provide students with timely and constructive feedback, based on engagement activities and assessment tasks. The feedback can take many forms including written comments, digital annotations, or verbal

discussions. Teachers provide feedback to students to support their growth, reinforce learning outcomes, and guide them in their future development.

3.1.3 Post-Lesson Stage

- **Reflection:** Reflection activities are designed to encourage students to critically reflect on their learning experience. Interactive and collaborative reflection can be fostered by these online activities. Reflective activities help students to identify areas of weakness and strengths and make connections between lesson content along with their own knowledge or experiences.
- **Design Further Learning:** Teachers develop additional activities or assignments in this stage that go beyond the lesson. These kinds of activities will promote interdisciplinary links, encourage independent research, or provide opportunities for creative expression. Teachers can develop student curiosity, self-directed learning, and exploration of related content or topics by designing further learning opportunities.
- **Design Assessment:** Teachers develop assessment tasks that permit students to show their understanding and application of the lesson content. This type of assessment may include online quizzes, essays, presentations, or projects. Teachers can provide invaluable feedback on student performance by designing assessments that are in line with lesson objectives.
- **Monitor:** The third and final substage of the post-lesson stage entails monitoring and tracking student involvement and progress in the activities and tasks presented after the lesson. Teachers can monitor student participation, completion rates, and overall involvement using the online platform for these activities. Monitoring student activity helps teachers make informed decisions about future instructional methods, identify areas for improvement as well as gain insights into student learning.

Teachers are able to create an interactive and well-structured learning environment for students by incorporating these three main steps and 12 substages of e-FLIP lesson planning. The e-FLIP Model provides a comprehensive framework that integrates video material, inquiry activities, assessments, and reflection, ultimately encouraging student-centered learning and a greater understanding of the subject.

3.2 Principles of the e-FLIP Model

3.2.1 e-Collaboration:

- **Collaboration in e-FLIP Learning:** One significant difference between traditional Flipped Learning and e-FLIP Learning is the increased collaboration that is possible thanks to electronic tools and platforms. In e-FLIP Learning, students can try to participate in group projects, conversations, and interactions, utilizing technology to promote efficient teamwork and information sharing. These e-FLIP Learning instances of electronic cooperation.
- **Online Discussion Forums:** Teachers might use the online discussion boards that are a part of the video material or learning platform to encourage student-teacher engagement. The video content can be discussed, critiqued, and questions can be asked by the students. Teachers can aid students in developing a deeper understanding of the topics addressed in the knowledge clips by setting up a venue for group discussion where students can voice their perspectives, trade ideas, and collaborate. On these forums, teachers can also offer advice, moderate conversations, and offer clarifications as needed.
- **Virtual Group Projects:** Using e-FLIP Learning, students can collaborate on online group projects that go beyond the actual classroom walls. Online tools and platforms allow students to collaborate on projects, research projects, or problem-solving tasks. In order to communicate, brainstorm ideas, assign tasks, and work together towards a common goal, they can use collaborative whiteboards, video conferencing, and project management tools. This electronic collaboration promotes teamwork, communication skills as well as the ability to work efficiently in a digital environment.
- **Online Peer Feedback and Review:** Students can make use of many online platforms and tools to provide feedback on each other's work and also evaluate the course material with the electronic aspect of e-FLIP Learning. Student peers can provide feedback on assignments, presentations, or projects, for example. They can also provide constructive criticism and suggestions. This can be very beneficial. This encourages peer-to-peer learning, critical thinking, and also strengthens the students' ability to provide and receive feedback in a digital environment. The exchange of feedback can be facilitated by using online platforms, allowing students to participate in synchronous or asynchronous feedback loops.

- **Collaborative Document Editing:** Google Docs and Microsoft Office 365 are some examples of electronic collaboration tools that allow real-time collaborative document editing. The students can make edits, additions, or comments on a shared document and participate in live discussions. This cooperative editing promotes collaborative writing, idea generation, and co-creation of content. It encourages teamwork and shared ownership of learning projects and enables students to work together on group assignments, research papers, or shared project documents.
- **Online Virtual Classrooms:** The virtual classroom platforms offer opportunities for synchronous collaboration in e-FLIP Learning. These platforms allow students to participate in real-time discussions, video conferences, breakout sessions, and collaborative activities. Teachers can facilitate case studies, problem-solving tasks, or interactive group work where students can actively take part and collaborate with peers. The electronic nature of these virtual classrooms ensures that students, irrespective of their physical location, can connect, interact and collaborate, encouraging inclusivity and flexibility in collaborative learning.

E-FLIP Learning, by making use of electronic collaboration tools as well as platforms, creates a setting where students can actively work together, exchange ideas, and co-construct knowledge. The electronic dimension enhances the collaboration process, and in addition, prepares students for the digital workspaces and collaborative environments they are going to encounter in their professional and academic lives. In the digital age, it encourages collaboration, critical thinking, communication skills, and adaptability.

3.2.2 e-Communication

Effective communication is a key component of e-FLIP Learning because it promotes peer-to-peer engagement and meaningful exchanges between teachers and students. Through electronic platforms and technologies, e-FLIP Learning enables seamless and prompt communication while fostering support, clarity, and participation. Here are a few illustrations and details on communication in e-FLIP Learning:

- **Email Communication:** Email is used as the primary means of communication in e-FLIP Learning. To make sure everyone is aware of the video material, teachers can send out emails with important updates, reminders, or other resources. Between teachers and students, this fosters a sense of community and support. Email is the preferred method for students to reach out to their teachers and ask any questions they may have. No matter

where they are physically located or whether they attend class, all students can receive important information via email.

- **Online Discussion Boards:** Online forums or discussion boards are used in e-FLIP Learning to facilitate asynchronous communication and collaboration. In separate discussion threads linked to the video content, students can post queries, offer insights, and engage in peer-to-peer discussions. Discussion boards go beyond the bounds of in-person classroom interaction to promote deeper comprehension, critical thinking, and idea exchange. When necessary, teachers can offer further information or clarifications and can participate actively in these exchanges.
- **Chat Platforms:** Real-time engagement is provided by chat platforms or instant messaging in e-FLIP Learning. Students and teachers can discuss pressing inquiries, seek prompt explanations, or handle pressing inquiries. These chat systems can be used to encourage participation, facilitate swift conversation, and lower obstacles to communication. Teachers can assess student video material on chat networks and offer suggestions or feedback. Students can engage in group conversations, interact with peers, and share resources in these chat rooms.
- **Video Conferencing:** Utilizing video conferencing solutions like Zoom or Microsoft Teams improves interaction and communication in e-FLIP Learning. The teachers can conduct virtual meetings or live sessions where they can provide extra content, facilitate discussions, or answer students' questions in real time. Videoconferencing sessions create a feeling of community in the classroom, facilitating direct communication between students and teachers and also peer-to-peer interactions. Also, video conferencing facilitates collaboration, presentations, and group discussions, creating a dynamic and interactive learning environment.
- **Collaborative Document Platforms:** Communication features that permit real-time collaboration are offered by electronic collaborative document platforms like Google Docs or Microsoft Office 365, as suggested earlier. Students may make comments, provide feedback or participate in discussions on the document itself while working on shared documents. These sites promote peer editing, collaborative writing, and knowledge sharing. The student can express their thoughts, seek input from peers and collectively build knowledge within the document, encouraging collaboration and active participation. e-FLIP Learning makes it possible for efficient and effective communication among students and teachers through electronic communication tools and platforms. It eliminates barriers of time and place and encourages accessibility, responsiveness, and collaboration. Effective

communication increases student engagement, creates a supportive learning environment, and facilitates the exchange of ideas and feedback, thereby enhancing the learning experience.

3.2.3 e-Monitoring:

Traditional Flipped Learning had a significant limitation in terms of monitoring opportunities. The teachers had limited insight into the student activity and involvement with the video content. e-FLIP Learning, however, provides teachers with tools to monitor student activity within the video content. Teachers can monitor student progress and engagement using a variety of web tools, ensuring that students understand and watch the video content before the in-class session begins. Support for students who are having difficulties with the video content can be provided by sending reminders via email or chat. This monitoring capability enables personalized attention and intervention to improve the learning outcomes of students. Monitoring student progress, engagement and comprehension of video content is critical in e-FLIP Learning. Teachers are able to collect data and insights that influence their instructional decisions as well as provide timely assistance to students with the aid of electronic tools and platforms. Listed here are details and examples of monitoring in e-FLIP Learning:

- **Viewing Analytics:** The electronic platforms used in e-FLIP Learning frequently provide viewing analytics that allows teachers to keep track of student engagement with the video content. These analytics can tell you how many students have watched a video and at what point they pause or rewind at certain points. An analysis of the data collected can help teachers determine patterns, comprehension gaps, or areas of trouble for the class or individual students. This can help teachers customize their in-class interventions and activities to meet the needs of their students.
- **Online Quizzes or Assessments:** In e-FLIP Learning, teachers can monitor online quizzes or assessments. They can use them as monitoring tools. Teachers may create questions or assessments, adhering to the video content, to test their students' understanding of the material covered. Assessments of this type can be conducted using online platforms, learning management systems, or special quiz tools. Analyzing student responses helps teachers figure out the efficacy of the video content and identify areas that need clarification or reinforcement.
- **Communication and Feedback Platforms:** An avenue for continuous monitoring in e-FLIP Learning is electronic communication and feedback platforms. In order to monitor student progress and understanding, teachers

can utilize discussion boards, chat platforms, or email. Teachers are able to help students understand concepts, address misconceptions, and provide additional guidance by starting conversations, asking probing questions, or offering support. Students can make use of these platforms to ask questions, share concerns and look for additional resources, thus creating a dynamic feedback loop between students and teachers.

- **Online Assignments and Projects:** e-FLIP Learning involves usually online projects and assignments that could be monitored electronically. As teachers are able to create digital submission systems for assignments, they can track student progress, submit dates and provide appropriate feedback. Teachers can keep track of the progress of group projects through online project management tools or shared document platforms. Electronic monitoring assures accountability, allows for appropriate intervention, and offers opportunities for formative assessment during the entire learning process.
- **Learning Management Systems (LMS):** Utilizing a Learning Management System gives teachers comprehensive monitoring capabilities in e-FLIP Learning. The most popular LMS platforms include student activity logs, progress tracking, and grade books. The teachers can evaluate student completion of assigned tasks, interaction with online resources, and overall involvement in the learning process. The LMS platforms also facilitate communication, resource sharing, and central data collection, which makes it much easier for teachers to keep track of student progress and make data-informed instructional decisions.

e-FLIP learning provides teachers with valuable insights into their students learning journeys through electronic monitoring capabilities. They can help students identify struggling students, provide targeted support, differentiate instruction, and make data-driven decisions to improve student learning outcomes. The monitoring of student progress also encourages accountability, engagement, and self-regulation as students are made aware that their progress has been monitored.

3.3 The Innovative Aspect of e-FLIP Learning (in Comparison to Flipped Learning)

3.3.1 Differences and Similarities in Comparison to Flipped Learning

The educational landscape has seen a change in teaching methodologies in recent years with the development of Flipped Learning models. Flipped Learning has gained recognition because of its ability to promote active learning and

student engagement, and is characterized by a reverse of the instructional process. The e-FLIP Model was developed to deal with the limitations and challenges of conventional Flipped Learning. In this chapter, we are going to compare and contrast the primary differences between traditional and e-FLIP Learning models, shining light on their unique approaches to teaching and learning.

Flipped Learning is based on the principle that direct instruction is best delivered outside of the classroom, usually through video lectures or web-based resources. The expectation is that the students are going to independently interact with the instructional content at home, acquiring basic knowledge and skills. Then the classroom time is devoted to collaborative activities, problem-solving, and higher-order thinking tasks led by the teacher.

The e-FLIP Model is an evolution of traditional Flipped Learning, incorporating technological advances and addressing the limitations faced by teachers and learners. This revised approach brings about transformational changes in a number of key elements of instructional design and implementation.

Higher-order thinking tasks can be completed in the classroom by completing lower-order information acquisition at home, according to traditional Flipped Learning. The e-FLIP paradigm, on the other hand, realizes the promise of technologically assisted interaction and group learning. It creates interactive video content using internet tools and platforms so that students may interact with it in a variety of ways. This promotes critical thinking and active learning both inside and outside of the classroom.

Flipped Learning is frequently characterized by pupils learning at home on their own, applying what they have learned alone. The e-FLIP Model, on the other hand, promotes a collaborative learning environment. During class discussions, group projects, and group discussions, students have the opportunity to participate in group chats. By bringing students together, the model promotes collaboration, social learning, and the growth of critical interpersonal skills.

While traditional Flipped Learning emphasizes information acquisition at home and application in the classroom, the e-FLIP Model offers a more balanced approach to learning. Students participate in both active knowledge application and training in the classroom as well as basic knowledge learning at home with video content from the e-FLIP Model. The quick feedback, explanation, and encouragement from the teacher and other students that come through the integration of learning activities enhance the learning process and promote a deeper knowledge of the subject.

The use of project-based learning is yet another important distinction. Projects are typically given as homework or separate assignments to be completed outside of class in traditional Flipped Learning. In contrast, the e-FLIP Model promotes project-based learning in the classroom. With the help and guidance of the teacher

and their peers, the students have the opportunity to work together, explore ideas, and complete projects. This collaborative method promotes innovation, critical thinking, and the growth of vital 21st-century skills.

As educational models continue to advance, addressing the issues that both students and teachers face, the e-FLIP Model has emerged as a modified version of traditional Flipped Learning. The e-FLIP concept emphasizes deeper learning, interaction, and cooperation in addition to a constructive approach to learning and application. Thus, it promotes the acquisition of crucial digital skills. With its cutting-edge and student-centered design, the e-FLIP Model represents a significant advancement in instructional practice, enabling both students and teachers to thrive in the modern educational environment.

3.3.2 Affordances Introduced with e-FLIP

The e-FLIP Model, a modified form of traditional Flipped Learning, provides several affordances that improve the teaching and learning process. These changes generate new chances for engagement, collaboration, and tailored learning by making use of the drawbacks of conventional teaching techniques. The primary affordances of the e-FLIP Model are covered in this chapter.

Among the benefits of the model are interactive learning opportunities. With the use of contemporary online technology, teachers may now create video content that goes beyond passive viewing. Through clickable elements, embedded quizzes, notes, and other interactive features, the students can engage with the content. Interactivity fosters analytical thinking, active participation, and quick feedback, which deepens understanding and aids with memory.

The e-FLIP Model also provides opportunities for collaborative and group work. The model, in this sense, is different from the traditional Flipped Learning model in that it encourages collaboration by having students work remotely utilizing various online tools and platforms. The students are, therefore, able to contribute to discussions, take part in group work and projects, and give feedback to their peers. This aspect of cooperation promotes the development of learning in a social environment, teamwork, and interpersonal skills, preparing students for the collaborative hiring practices of today's workplace.

In terms of individual differences, the e-FLIP Model has the benefit of being able to deliver differentiated and individualized instruction. One benefit of using online tools and platforms in the model is the capacity to tailor instructional materials and resources for each learner. Teachers might offer more practice exercises, supplemental resources, or different explanations to match the needs of individual learners. The model's versatility enables students to do activities according to their own learning style and speed. This way, the instruction in the model is both informative and enjoyable.

The e-FLIP Model offers enhanced monitoring and assessment capabilities through the online platforms and Web 2 tools which provide the capacity to monitor student activity, progress, engagement, and achievement in online settings and real-time. Students' interactions with the material, such as video content, involvement in the project work, and assignment fulfillment can be monitored by the teacher. This analytic data-driven method gives appropriate opportunities for intervention and targeted aid when required, as well as insights into students' learning behaviors throughout the course. Furthermore, online assessment tools including tests and quizzes can be used to provide students rapid feedback to inform them about their strengths and weaknesses.

With the use of the e-FLIP Model, teachers can give students better opportunities to access online learning resources. These resources present themselves as a variety of multimedia content, such as interactive content, essays, knowledge clips, online platforms, and tools. This accessibility allows students to connect to multimedia resources that match their individual learning preferences, explore different perspectives, and stay up to date with the content. It also eliminates the limitations of place and time, enabling learning anytime, anywhere, and promoting a culture of lifelong learning.

In short, the e-FLIP Model offers a wide range of affordances to enhance the efficiency of teaching and learning. The model allows teachers and students to participate in a rich, dynamic, learner-centered educational experience through interactive learning experiences, collaborative opportunities, and personalized instruction. Moreover, this model creates new opportunities for successful and transformative education using technology and innovative teaching methods taking a step up from the conventional Flipped Learning, which uses technology while addressing its downsides to create a more dynamic and engaging learning environment. The model also promotes combining interactive content, collaborative opportunities, tailored training for individual needs, better tracking, and better access to learning resources.

All in all, students are actively involved in their learning through interactive activities that encourage deeper understanding and critical thinking. And, the model encourages students to learn at their own pace and facilitates differentiated and personalized instruction. Thus, the e-FLIP Model creates new opportunities for effective teaching and learning, helping teachers and students succeed in the digital age.

CHAPTER V

Mehmet Fatih Özmantar, Melike Özyurt, Emrah Cinkara and Mehmet Bardakçı

Digital Tools for e-FLIP

In this chapter of the book, digital tools, which have an important role in the e-FLIP Model, will be discussed. Although digital tools for educational purposes show a great variety, we will limit our attention to Web 2.0 tools under this title. In this connection, we will start with a brief history of these tools. In order for the reader to develop a comprehensive perspective, we will explain these tools with a classification of their purposes. Following this, we are going to attend to the distinguishing characteristic features. Finally, we will conclude this chapter by giving some general information about the use of Web 2.0 tools with the e-FLIP Model.

1 A Brief History of Web 2.0 Tools

At the time when the Internet first appeared in our lives, it allowed a one-way interaction from the producers to the users. In this period, developers made the content they produced available and users accessed this content and read or watched it but did not have the opportunity to create their own content. Since the users could only browse the content, this period is often described as the read-only web (Özden, 2022). This era, which corresponds to the first and most primitive period of the Internet, is known as the Web 1.0 era. In the Web 1.0 era, the content was fixed and the flow of information was unidirectional from content developers to content accessors. The content presented on the Internet led to the formation of virtual libraries and users assumed a role limited to reading this library. In this period, the content presentation was generally through HTML-based pages created by companies. Users did not have permission to make any additions or deletions to this content, nor was it possible for them to comment on it.

Web 2.0 is an important milestone in the development of the Internet. The term Web 2.0 was introduced by Media Analyst Tim O'Reilly in a brainstorming session with Meda Live at a conference held in 2004 (Korucu & Karalar, 2017). Individuals who passively visited web pages in the Web 1.0 era have become individuals who share and interpret information, collaborate and interact, and actively participate

and produce content in the Web 2.0 era (Brown, 2009).

Internet users' experiences have altered significantly as a result of the introduction of Web 2.0, moving from being information consumers to information creators. These technologies enabled users to start creating material for a variety of platforms, including blogs, wikis, social media, forums, and video-sharing websites. Web 2.0 has also made it possible for people to engage with one another and produce more content online. It would be helpful to have a look at several Web 2.0 tool categories.

One of the most well-known uses of Web 2.0 tools is blogs. Blogs are online diaries where people write about certain topics or publish entries about their daily life. Other users can interact with one another and leave comments on the blog. The wiki is another example of a Web 2.0 tool. Users can collaborate and work together on wikis, which are web-based documents. Wiki users can edit pages, add content, and collaborate. Wikipedia is, for instance, a popular wiki platform. Web 2.0 also includes social media platforms such as Facebook, Twitter, and Instagram. With these tools, users can post, interact with others, and share their content. Users can build virtual communities and exchange ideas through these platforms.

Several researchers such as Darwish and Lakhtaria (2011) and Allen (2013) refer to important technological and sociological developments leading to the emergence of the Web 2.0 era. The increase in the access and speed of internet connection are probably among the most important developments. These developments enabled many to interact through Web 2.0 tools and produce content to a great extent. High-speed internet has allowed the enrichment of the content developed by users. Web Standards and Development Tools have also contributed to the production of web-based software and made it accessible to many users. This had an effect on the creation of engaging and interactive web experiences. Social media platforms, which have become boundless in the Web 2.0 era, have created an unprecedented level of user participation. This made a significant contribution to the enrichment and diversification of content and the emergence of innovative perspectives.

The widespread use of Web 2.0 tools has also had significant sociological implications as stated by Kaplan and Haenlein (2010). Web 2.0 tools fostered online communities that enabled interaction between users with similar interests. People have started to find opportunities to communicate with each other, work on projects together, and share information through social networks and forums. Based on preferences and interests, Web 2.0 started to offer personalized experiences. Users were offered particular content and suggestions in which they might be interested via suggestion systems and personal profiles. The amount of community-based knowledge has also increased as a result of initiatives like wiki platforms and open-source projects.

2 Classification of Web 2.0 Tools

Web 2.0 tools are generally classified according to their intended use. When the commonly used Web 2.0 tools are analyzed according to their purposes, it is possible to classify them under four main headings: content creation, online communication, collaboration, and education. We will now attend to each of these categories and illustrate them with examples.

2.1 Content Creation Tools

Content creation tools allow users to share their ideas, knowledge, and experiences. These tools can be divided into the following categories.

- **Blogs:** Blogs are online diaries where users usually share their own thoughts, experiences, and information on any topic. They can be individually or professionally created and allow users to produce and share a variety of content types. For example, some users share simple texts, photos, videos, or other types of advanced media they create. Blogs are known to be effective tools, especially for those with expertise in a particular subject, to share information and further interact with their audience in the related field and topic.
- **Wikis:** Wikis are web-based documents whose most important feature is allowing many different users to work together and create content together simultaneously. Users can edit the content presented in Wikis or create a new one, either individually or in cooperation with their peers. Wikipedia is probably the most popular Wiki platform on the internet. It is basically an internet-based encyclopedia created collectively by users and it is updated regularly.
- **Podcasts:** Podcasts are described as products or platforms through which users can produce, share and publish audio recordings on a selection of topics they chose. They record their own podcasts including monologues on different topics, interviews, and discussions.
- **Video editing tools:** Video is a powerful tool in teaching and with the help of Web 2.0 tools, users can create their own videos using a variety of devices including mobile phones, digital cameras, and computers. Furthermore, they can also edit and modify video content using video editing applications, screen recording software, and animation tools.
- **Presentation Tools:** Presentations are done mostly offline on personal computers, but nowadays there are some online tools to create, share and perform presentations online. Cloud-based tools allow users to interact and

collaborate while preparing presentations with professional and visually appealing templates and themes. These tools are mostly user-friendly, and easy to share and access, such as Prezi, Google Presentations, Microsoft Sway, and Slideshare.

2.2 Communication and Social Networking Tools

Social networking and communication are the most common uses of online tools. By using these tools individuals can organize online communities and interact with each other easily and effectively. Some of the categories of these Web 2 tools are:

- **Social Networking Platforms:** Nowadays, the most commonly used web platforms are social networking platforms such as Facebook, Twitter, and Instagram which allow users to connect, share content, like, and comment. After building their own personal profile on social media, users can add friends to their network, and communicate with each other. These platforms are also used for businesses to engage with clients and advertise their services and products.
- **Forums:** Forums and forum discussions are used to talk about specific topics, ask and answer questions, and exchange information. Users can participate in discussions, ask questions, and connect with others in their industry. Forums allow users to connect with others who share their interests and form communities based on those common interests.
- **Messaging and Instant Communication Tools:** The Web 2.0 era saw a major revolution in messaging and instant communication where WhatsApp, Messenger, and Skype are among the most popular technologies. These applications allow users to quickly communicate via audio and video, as well as share content in various formats (text, photos, etc.). Additionally, these features allow users to participate in and organize individual or group discussions.
- **Sharing Platforms:** The Internet is a huge venue for sharing platforms including YouTube and Vimeo, two of the most popular video-sharing services. Users can like, comment, subscribe, or create their own content on these platforms. Similarly, there are many photo-sharing platforms such as Flickr and Pinterest, where users can upload photos, share them and make new discoveries.

2.3 Collaboration and Project Management Tools

Another innovation brought by Web 2.0 tools is online platforms that allow users to collaborate, work together and share tasks for the execution of particular projects. Project management tools allow teams to interact effectively and thus increase productivity. This significantly facilitates the functioning and management of business processes. With these tools, users can follow the workflows in the project simultaneously, assign tasks and share files. Since these tools enable remote working, they support collaboration between partners in different geographical locations. The relevant tools could be categorized under the following headings.

- **Online collaboration tools:** These tools are developed for users to share and work together on the same project. It is possible for multiple users to work on the same document or file simultaneously. Examples of these tools include cloud storage and collaboration platforms such as Google Drive, Microsoft Office 365, and Dropbox. These tools allow users to edit documents simultaneously and offer synchronization. Thus, team members in different locations can work together and collaborate.
- **Task Management and Calendar Tools:** These tools serve the purpose of planning projects, making time-based assignments, work tracking, and management. Features such as making timelines of projects, monitoring task progress, file sharing, and communication are included in these tools. Examples of commonly used task management tools include Trello, Asana, Basecamp, and JIRA.
- **Online Meeting Tools:** One of the important innovations that entered our lives with the development of Web 2.0 tools is online meeting tools. Examples of these tools include Zoom, Microsoft Teams, and Google Meet. Meeting tools are used for video conferencing and collaborative communication. They are very convenient tools for individuals in different geographical locations to come together and have live meetings. These tools also allow team members to make presentations and share in virtual environments.

2.4 Education Tools

Web 2.0 tools are also widely used for educational purposes. These tools are designed to support online learning processes and are functional in organizing and conducting training. These tools allow students to interact and also offer personalized learning experiences. With the help of these tools, students can access online resources, collaborate, and have a participatory learning experience. a classification of tools that can be used for educational purposes is shared below.

- **Distance Education Platforms:** These tools are used to create virtual classrooms and present course materials in online environments. Examples of these platforms include Moodle, Blackboard, and Canvas. These and similar tools are designed to organize the online learning process. On these platforms, teaching materials can be presented, live lectures can be held, virtual classrooms can be created, interactive learning materials can be shared, and communication and interaction between participants can be provided. It is also possible for teachers to share recorded lectures with students, define assignments and organize exams.
- **Learning Management Systems:** One of the important platforms developed for educational purposes among Web 2.0 tools is Learning Management Systems (LMS). These tools are generally used by educational institutions. Google Classroom and Schoology can be given as examples of commonly used LMS. These tools are used for managing courses, assigning content, tracking students' progress, evaluating, and reporting. Students can also access their assignments, work on content and attend classes through the LMS.
- **e-book and digital content tools:** These tools are very functional in the creation of course materials. Teachers and students can create and share online course materials using e-book platforms and digital content creation tools. These resources provide customizable learning opportunities, enable the creation of interactive content, and can include multimedia components.
- **Online Survey Tools:** Users can create, distribute, and collect responses to surveys using online survey tools. These tools frequently have customizable features and user-friendly interfaces. They provide features like question definition during survey creation, use of various question types (multiple choice, open-ended, ranking, etc.), and response analysis. Online survey creation and analysis are made simple by tools like SurveyMonkey, Google Forms, and Typeform.
- **Online Exam Tools:** These tools are primarily used to design and manage exams for businesses, educational institutions, and individuals. Users can create exam questions, set exam time limits, assess responses, and report results using these tools. It is possible for teachers or educators to design interactive exams for their students using online exam tools like Moodle, Kahoot, and Quizlet. Businesses can also use these tools to organize certification exams or evaluate their knowledge-based competencies.
- **Survey and Exam Analysis Tools:** Online survey and exam tools usually have analysis, evaluation, and reporting features. In this way, teachers can statistically evaluate, graphically represent or compare student/participant

responses. Since the answers given by the participants are processed instantly in the system, the results can be monitored simultaneously and reports can be downloaded. Due to these features, it is possible to better understand, and hence provide timely feedback to, the participants and make data-based decisions to improve the educational processes.

As can be seen from the details presented so far, Web 2.0 tools can be categorized by offering various functions and features. Content creation tools enable users to share ideas and information. Communication and social networking tools support users to interact and build communities. Collaboration and project management tools facilitate teams to work together. Education tools provide students with interactive and personalized learning experiences. This diversity enables users to select web 2.0 tools according to their needs and purposes. Web 2.0 tools have great potential in the field of education while improving users' access to information and communication.

2.5 Characteristics of Web 2.0 Tools

When viewed holistically, Web 2.0 tools have some common characteristics. These characteristics are useful for developing a comprehensive perspective on the use of Web 2.0 tools. In this section, the common characteristics of Web 2.0 tools will be briefly shared based on the details emphasized by the research studies of Solomon and Schrum (2014) and Shelly and Frydenberg (2012).

The first feature that draws attention to Web 2.0 tools is that they allow user participation. Creating, sharing, and interacting with content with the help of these tools are features that support user participation. These features also influence how users interact with websites. The second aspect in common is that Web 2.0 tools enable users to share the material they create; and with the use of these technologies, users can share any type of information they create, such as text, photographs, videos, or sound recordings, with other users. Third, these tools make user collaboration and communication easier. While working on the same project, users can quickly engage, remark, and provide feedback utilizing these features.

Another feature that these tools have in common is that they provide an interactive experience, which is one of their key advantages. Users can communicate with one another through voting, sharing, liking, and commenting. Another feature of web 2.0 tools is that they usually run as web applications. These tools do not need to be installed and may be accessed and used from any internet-connected device. Another important element of Web 2.0 tools is data exchange and integration. Users can choose to share, integrate, and receive data from other platforms or tools. Finally, Web 2.0 tools are well-known for their ease of use. These technologies provide simple interfaces and customizable settings to improve the

user experience.

The common features of Web 2.0 tools mentioned here support the adoption and widespread use of these tools by users. They also lead to the potential for a wide range of applications, which makes the use of these tools impressive. Thus, Web 2.0 tools represent a milestone in the evolution of the Internet and users' web-based interactions.

2.6 Web 2.0 Tools and e-FLIP Model

Web 2.0 tools play an important role in the integration of the e-FLIP Learning approach. e-FLIP Learning emphasizes the presentation of the content to the students before the instruction with the help of online Web 2.0 tools and hence allowing the students to work on the presented content before the lesson. Web 2.0 tools have important opportunities for the implementation of this model. It would be useful to consider these opportunities from the perspectives of teachers and students separately.

2.6.1 From the Teachers' Perspective

In e-FLIP learning, creating the content, sharing it with students, and monitoring students' engagement are important teacher tasks. With the help of Web 2.0 tools, it is possible to create and share pre-study materials. Teaching materials could consist of lecture notes, videos, podcasts, or interactive content. Blogs, wikis, or presentation tools can be used to present and share such content. Thus, students can access and examine the course materials before coming to the classroom, and hence it may be possible to realize more qualified teaching in the classroom environment.

Monitoring student progress, doing evaluations, and giving feedback are additional opportunities provided to teachers by Web 2.0 tools within the context of the e-FLIP Model. These tools make it possible to track the extent of student engagement with the pre-study materials and their progress. If teachers invite students to produce online content, they can review, assess, and provide comments on the students' work. These offer crucial information that can be used to assess students' performances, track their progress, and take appropriate actions.

Web 2.0 tools, likewise, can be used to facilitate the monitoring of student group projects and collaborative work. Teachers are given the opportunity to use collaboration platforms to track which documents, projects, or activities students are working on together for the same purpose. These platforms provide teachers with detailed analytics to track students' progress in completing assigned activities, observe their contributions, and assess group dynamics.

Students' development can be tracked and their knowledge and skills assessed with questionnaires and tests created with similar Web 2.0 tools. Online surveys and test tools to collect and analyze student feedback can be employed by teachers relatively quickly and easily. Additionally, because many of these tools provide more detailed analyses of student feedback, teachers can monitor student progress, assess true/false answers, and provide detailed feedback.

Using questionnaires and exams generated with Web 2.0 tools, it is feasible to track students' development and evaluate their knowledge and skills. Teachers can swiftly collect and analyze student responses using online surveys and assessment tools. Additionally, because many of these technologies provide more extensive assessments of student replies, teachers can track student progress, analyze correct/incorrect answers, and provide detailed comments.

Web 2.0 tools also make it possible to access and monitor students' thinking. Students' blog posts or forum posts constitute extremely valuable inputs that could be used for this purpose. It is possible to evaluate students' ideas and provide feedback, when necessary, by following their discussions on online platforms.

Digital portfolios created with Web 2.0 tools can be a valuable resource for tracking student development and evaluating performance. Students' work can be followed and evaluated by analyzing the content of these portfolios. Digital portfolios are extremely helpful in revealing and visualizing student development.

As briefly detailed until now, Web 2.0 tools have great potential for use in the context of the e-FLIP Learning Model. Web 2.0 tools provide a variety of options for monitoring and evaluating student engagement as well as providing feedback to the students on the teacher's content. However, we feel it worth noting here that when using these tools, necessary care must be taken for personal data protection, privacy, and security issues. It is critical to adhere to the applicable legal regulations and policies regarding data protection and use.

2.6.2 From the Students' Perspective

Within the e-FLIP Learning Model, Web 2.0 tools offer significant promises for students as well. To begin with, with certain Web 2.0 tools, teachers can make students engage in pre-lesson materials and therefore have a more effective pre-learning experience by participating in and engaging with the material prepared by the teacher. It is clear that students enjoy the improved learning experience and also better communication opportunities both with the teacher and their peers. These applications also provide students with a collaborative platform to work on the materials presented before class. Students can exchange event-related documents, and edit, discuss, and provide feedback on documents they collaborate on. By collaborating on these and similar online platforms, students can share

knowledge, discuss ideas, and create common resources.

Web 2.0 tools also allow students to work in groups on content given by the teacher. Project management tools are useful to serve this purpose. Students can use these tools to distribute tasks among themselves, set timetables, track the progress of their work, and communicate. All these facilitate collaborative work and allow group projects to be completed efficiently in an online setting. Project management software such as Trello or Asana might assist students in organizing group projects.

Students can use survey and exam tools to get feedback from one another regarding the pre-study content delivered to them. Students' comments through these tools could be helpful to understand and assess the ideas of others, provide feedback, and make suggestions for improvement. Such activities assist students build critical thinking skills and learn to give and receive feedback cooperatively.

In conclusion, Web 2.0 tools improve the learning experience by fostering student cooperation, communication, and sharing. Students acquire cooperation abilities that facilitate in-depth learning through working together, exchanging ideas, and learning from one another. This allows students to become more engaged, participatory, and critical thinkers. Web 2.0 tools fit well with the e-FLIP Model as they allow students to engage the classroom teaching materials ahead of time. This gives students a chance to participate in classroom activities and have more in-depth learning experiences in the classroom. Web 2.0 tools also allow teachers to communicate with students, track their engagement and progress, provide feedback, and analyze student performance. All these contribute greatly to the production of effective and more in-depth instructional practices during class time.

CHAPTER VI

Sigrún J. Baldursdóttir

Legislative Regulations Concerning Web 2.0 Tools

1 Legislative and Ethical Considerations while Using Digital Tools (web 2.0) in Education

As the use of digital tools has revolutionized how people communicate, learn, work, and interact with the world, concerns about personal privacy have been raised. Ensuring data security and responsible use of digital tools, along with avoiding algorithmic biases is a challenge for the future. Data breaches, collection of personal information without consent, and unauthorized surveillance are some of the ethical challenges we face, as is the use of algorithms and artificial intelligence (AI) which can maintain and enhance discrimination and inequality. Laws addressing those concerns must be updated as the technology enhances to prevent abuse. Therefore, the need for robust regulations to govern cybersecurity, data protection, and online behavior is evident. Furthermore, regulations concerning the use of AI must ensure accountability and transparency, thus striking a balance between ethical considerations and innovation which is essential to establish effective legislation to navigate the digital tools landscape (Floridi, L., & Taddeo, M., 2016; Jobin, A., Ienca, M., & Vayena, E., 2019).

2 The Digital Competence of Educators

To ensure guidelines for those working and teaching in the digital environment, and using Web 2.0 tools, the European Commission developed The European framework for the Digital Competence of Educators (DigCompEdu) (European Commission, 2017), it consists of six key components: digital resources, professional engagement, empowerment and leadership, teaching and learning, assessment and feedback and safety. Each of the key components is further divided into areas of competence which provide a more detailed description of required knowledge and specific skills. This framework focuses on enhancing the digital competence of educators through a referenced framework for assessing and developing their digital skills, knowledge, and attitudes needed for the successful integration of

digital technologies in teaching and learning. The emphasis of DigCompEdu is on the responsible use of digital tools, critical thinking, collaboration, creativity, and using digital tools and resources to make the most of personalized learning experiences and teaching practices. DigCompEdu is a valuable resource for educators in the form of a common language and framework for professional development, collaboration, and self-assessment (Ferrari, A., 2012; Redecker, C., & Punie, Y., 2017).

3 What are Web 2.0 Tools?

Web 2.0 tools are online interactive platforms and applications that foster user-generated content, collaboration, and social interaction on the internet. These tools represent a new era where dynamic and participatory web experiences are available to anyone with an internet connection. People who use these tools can create, share, and modify content online in collaboration with others. Web 2.0 tools represent a wide range of applications and platforms, including social networking sites (e.g. Twitter, Instagram, Facebook), content-sharing platforms (e.g., YouTube, Flickr), and collaborative editing tools (e.g., Google Docs). These tools usually incorporate features such as users' profiles, commenting systems, sharing functionalities, and real-time communication channels (Leaver, T., & Kent, M., 2012).

4 The Digital Evolution in the School System

In recent years, the school system has transformed teaching and learning practices significantly to integrate digital tools such as interactive whiteboards and digital resources seen in computers and tablets in the classroom. This has required teachers to change and adapt their teaching methodologies but also enables personalized and interactive learning experiences. Educators' role in the classroom has shifted to that of a facilitator who guides students through digital resources, fosters digital literacy, and challenges their critical thinking. Most educators embrace digital tools and platforms and create dynamic and interactive lessons. They use online resources, multimedia materials, and educational apps to personalize teaching materials and make the classroom more interactive. Professional development is thus essential for teachers and must be continuous to be able to follow the ever-changing world of digital resources and adapt their teaching instruction strategy to effectively leverage digital tools (Knezek, G., Christensen, R., & Ropp, M., 2013).

The evolution has also affected students and they must develop digital literacy skills to thrive in a modern technology-driven society. To ensure students' progress, schools must integrate and prioritize digital literacy education into the curriculum.

Students must be taught online safety, critical evaluation of information, responsible digital citizenship, and how to effectively utilize digital tools. Furthermore, they must develop proficiency in using productivity and communication tools. Doing so Educators prepare students for the challenges and opportunities of the digital age, with essential knowledge and skills (Fraillon, J., Ainley, J., Schulz, W., Friedman, T., & Gebhardt, E., 2019).

5 Legislative Regulations

Although the digital revolution has many advantages there are still concerns for us about personal privacy, data security, and our right to remain without a digital footprint. Therefore, it is essential to follow legislative regulations concerning Web 2.0 tools to address the challenges in using the tools and to ensure responsible usage of these platforms. Legislation should cover privacy issues, content moderation, and platform accountability which are the most critical areas. Governments are increasingly recognizing the importance of individuals' privacy online. Thus, The European Union set forth the General Data Protection Regulation (GDPR) as an example of legislation that is aimed at protecting individuals' rights to privacy, giving them greater control over their personal data, and making organizations accountable for data protection. Regulations regarding content moderation have been published to combat hate speech, false information, challenges of algorithmic amplification, and other harmful content. Furthermore, legislative initiatives often focus on ensuring platform accountability by reinforcing regulations that require transparency in data collection practices and how sponsored content is disclosed and plus ensuring fair competition among online businesses. By making clear guidelines and establishing enforcement mechanisms, legislative regulations contribute to fostering a safer, more transparent, and equitable online environment for users of Web 2.0 tools (European Commission, 2018; Bernal, P.,2018).

As it is vital for schools to protect their student's privacy, they still must inform them and teach them about the latest technology. Legislation is there to make clear guidelines but has a significant impact on the use of Web 2.0 tools in teaching. To ensure the responsible and effective integration of these tools into the learning environment, schools must navigate various legal considerations. One of the most fundamental is students' privacy along with issues of data protection, copyright considerations, and content moderation. Schools must comply with data protection laws, implement measures that protect students' information and data, and get parental consent when necessary. Students should be protected from the dissemination of harmful and inappropriate content online by content moderation policies. Schools should also adhere to copyright and intellectual property regulations. To be able to harness the potential of Web 2.0 tools schools

must understand and comply with relevant legislation, ensure that the Web 2.0 tools they use have appropriate measures in place to protect students from online threats and thus safeguard students' privacy, promote digital citizenship, and foster a safe and prosperous learning environment (European Data Protection Board, 2020; U.S. Department of Education, 2020).

Although all measures are taken, maintaining students' right to have no footprint online and being free from harmful content can prove difficult. Schools must implement robust data security measures that include using secure and encrypted platforms for online communication, storage, and collaboration. Taking such measures will enable schools to safeguard sensitive information about students from data breaches and unauthorized access from companies and individuals outside the school. All policies and procedures regarding data handling should be clear within schools to ensure that only authorized personnel have access to student data and only use it for educational purposes. There is much need for educating students and their families about the importance of online privacy, their rights in that regard, and responsible behavior online. Teachers should always inform their students about possible risks that come with sharing personal information online. There is a growing need for teachers to be aware of that as well because when using Web 2.0 tools in teaching there can be a demand for information that can potentially be harmful to students' privacy. By raising awareness for privacy and responsible digital practices, schools can empower students to make decisions based on knowledge and oversee their online presence more securely (Rathore, S., & Suhonen, J., 2018; Livingstone, S., Ólafsson, K., & Staksrud, E., 2013).

Therefore, it is evident that schools must respect students' rights for minimal or no footprint online. That requires schools to choose carefully when using web 2.0 tools and social media platforms. It is evident that these tools can be valuable to maximize learning opportunities, despite that, students and their privacy preferences must always be prioritized. All activities online should be optional and other alternatives always available for those who want to avoid having an online presence. Students should not be compelled to share personal information or engage in online learning activities that may compromise their privacy (Wachter-Boettcher, S., 2017).

6 Ethical Aspects

It is important to be aware of the ethical standpoint, as using digital tools in most aspects of everyday life has raised important concerns regarding privacy, data security, and the risk of algorithmic biases. There is unprecedented access to personal information through advanced technology and online presence which leads to concerns about data breaches, unauthorized surveillance, and collection

of personal information without explicit consent. People often accept things online without knowing that they are giving access to their personal information, children are therefore at risk of being exploited. That must be addressed and given urgent attention as it raises ethical questions about safety online. When data breaches occur, sensitive information can be exposed and have severe consequences for individuals, such as identity theft, bullying, financial fraud, and the ruin of reputation. These breaches raise questions about the ethical responsibility of companies and organizations that collect data online and their responsibility to safeguard the data (European Union Agency for Cybersecurity (ENISA), 2019).

Another concern is algorithmic biases, which raise ethical questions regarding digital tools, especially when it comes to involving the artificial intelligence (AI) in decision-making processes. Even though AI often relies on a vast amount of data to make predictions, it can be that the data itself carries biases from historical inequalities and societal prejudices. Thus, AI decision-making processes can perpetuate discrimination and inequality which can affect individuals and communities excessively. Therefore, there is a growing need for regulations addressing the use of AI. It is critical to ensure fairness, accountability, and transparency in AI systems to prevent potential harm and to build trust in these technologies. Existing laws that address data protection and cybersecurity need to be continuously updated and rigorously enforced to keep up with the ever-changing technological landscape. In the European Union, the General Data Protection Regulation (GDPR) has been a major step towards enhancing data protection and individuals' rights to privacy. Despite that, ongoing efforts are necessary to adapt regulations to emerging technologies and potential risks (Jobin, A., Ienca, M., & Vayena, E., 2019; Mittelstadt, B. D., Allo, P., Taddeo, M., Wachter, S., & Floridi, L., 2016; Tene, O., & Polonetsky, J., 2012).

7 Conclusions

By setting clear guidelines and strictly following legislation concerning Web 2.0 tools, schools can foster an environment that applauds digital well-being and clarity regarding data collection and storage. This will promote a culture of privacy awareness and informed consent, enabling students to make well-informed decisions about their own digital footprint (Crompton, H., & Sutherland, R., 2017).

As technology changes daily, it is vital to monitor and analyze all Web 2.0 tools used in educational environments. The widespread use of digital tools raises significant ethical concerns related to privacy, data security, and algorithmic biases. Regular evaluations should ensure compliance with privacy regulations and can identify and warn users about potential vulnerabilities or risks. Schools' obligation to stay updated on privacy laws and adapt policies and practices accordingly is

therefore evident. It is necessary for schools to provide avenues for reporting privacy concerns and for students and parents to seek clarification about data handling practices. Schools that show that they are actively monitoring and addressing privacy-related issues demonstrate that safeguarding their student's privacy is salient while benefiting from Web 2.0 tools in the learning process (Sorell, T., & Wallis, S., 2018).

The integration of technology in education has swiftly brought about significant changes. Schools must address ethical and legislative challenges to be able to navigate the ever-changing digital landscape responsibly and sustainably. Ethical considerations should be the main focus of technological development, guiding the design and implementation of digital tools to ensure they promote human values, respect privacy, and avoid discriminatory outcomes (Jobin, A., Ienca, M., & Vayena, E., 2019).

Prioritizing digital literacy education, adhering to legislative regulations, and respecting students' privacy rights, will help schools equip students with the necessary skills to thrive in a technology-driven world while maintaining their privacy and digital well-being (UNESCO., 2020).

CHAPTER VII

*Sigrún J. Baldursdóttir, Eva Ladňáková, Athanasia Zagkoti, Marta Codina,
Maite Garcia, Ada Rigacci*

Web 2.0 Tools

This chapter describes main features of selected Web 2.0 Tools that may be very useful in the educational process. In the scope of e-FLIP Model, several advantages and disadvantages widen the understanding of the individual online apps as well as their use in the teaching/learning practice.

1 Basecamp

1.1 What is Basecamp?

Basecamp is a web-based tool for project management and collaboration and it is designed to help teams stay organized, and communicate with one another online. It helps keep track of all the tasks, deadlines, files, discussions, and announcements that happen around work and track progress. Its purpose is to streamline project workflows and facilitate collaboration among team members, regardless of their location or time zone.

1.2 The Main Features of Basecamp

- A. **Projects:** Basecamp organizes work into projects, which serve as containers for tasks, discussions, and files related to a specific undertaking. Each project provides a dedicated space where team members can collaborate and access project-related information.
- B. **To-Do Lists:** Within each project, users can create to-do lists to outline tasks, deadlines, and responsibilities. To-do lists help track progress, assign tasks to team members, and ensure accountability.
- C. **Messages and Campfires:** Basecamp offers messaging features that enable team members to have discussions and share updates within projects. Messages are like email threads, while Campfires are real-time chat rooms for quick, informal communication.
- D. **File Sharing:** Users can upload and share files within Basecamp, eliminating the need for separate file-sharing platforms. This feature ensures that all

project-related documents, images, and other files are easily accessible to the team.

- E. **Schedule and Calendar:** Basecamp includes a calendar feature that allows users to schedule events, set reminders, and track project milestones. The calendar provides a visual representation of project timelines and important dates.
- F. **Client Collaboration:** Basecamp offers client access, allowing teams to collaborate with external stakeholders, such as clients or customers, in a controlled environment. Clients can be granted restricted access to specific project-related information.

1.3 How to Use Basecamp

Using Basecamp is rather simple:

- a. **First is to sign up:** Go to the Basecamp website and sign up. There you need to give information to be able to create an account and organization profile.
- b. **Create a project:** After signing in, create a new project by clicking the “New Project” button. Then give your project a name and provide a brief description if needed. **Customize your project:** Within the project, create to-do lists, add tasks, assign responsibilities, and set due dates for the project.
- c. **Communicate and collaborate:** Use messaging features like Messages and Campfires. Share updates, ask questions, and discuss project-related matters.
- d. **Share files:** Upload and share relevant files within the project so to all team members have access to them. This helps collaboration and all files are kept in one place.
- e. **Track progress:** Monitor the progress of tasks and projects by updating the status of to-do items, and items assigned to individuals, checking off completed tasks, and reviewing project timelines on the calendar.

1.4 Pros and Cons of Basecamp

Pros:

- Basecamp provides a platform for organizing and managing tasks, deadlines, and files, enabling teachers and students to stay connected, organized, and work efficiently.
- Basecamp’s messaging features and file-sharing capabilities enable collaboration among team members, facilitating effective communication and sharing of resources.

- Basecamp offers transparency in project progress, allowing teachers and students to track individual and group contributions.
- Basecamp's client access feature enables teachers and students to collaborate with others, such as parents or community members.

Cons:

- Basecamp has a rich set of features, and users may need time to familiarize themselves with its functionalities. Training or resources may be needed to be fully familiar with the tool's capabilities.
- Basecamp offers a paid model, and the free version has limitations on the number of projects and file storage capacity. That can limit usage for teachers. Users must upgrade to a paid plan for extensive usage or larger projects.
- Basecamp is only available in English.

1.5 Hints for an Effective Use of Basecamp

Make sure students know what is expected of them. Provide them with guidelines for using the to-do list, file organization, and how to communicate within the project. Emphasize the importance of taking part in discussions and individual responsibilities within the project. Make sure the file naming structure for related files is consistent.

1.6 A Sample Work for Basecamp

The teacher sets up a project and distributes tasks among students. The teacher can make a list of the things each student must finish. Within each list, the teacher adds relevant tasks, assigns responsibilities to individual students, and sets due dates. Students can access the project, review their assigned tasks, and collaborate with their peers using the messaging features.

2 Canva

2.1 What is Canva?

Canva is a web tool for graphic design that allows users to create professional-looking designs, graphics, and visual content. It is user-friendly and great for designing various visual materials without the need for graphic design skills or software expertise. Canva offers a wide range of templates, design elements, and customization options to support users in creating professional-looking content.

2.2 The Main Features of Canva

- a. Canva provides a huge library of professionally designed templates for different types of visual content, such as social media graphics, presentations, posters, flyers, and more. Users simply choose a template as a starting point and customize it to their needs.
- b. Canva has a vast collection of design elements, such as images, icons, shapes, illustrations, and backgrounds. These elements can be easily dragged and dropped onto the canvas to enhance the design.
- c. Canva users can add text to their designs using a variety of font styles, sizes, colors, and effects. Canva allows users to play with text elements, align them, and apply formatting options to create visually appealing typography.
- d. Canva includes basic image editing capabilities, allowing users to crop, resize, rotate, and adjust the color and brightness of images directly within the platform. This enables users to modify their visuals without the need to import editing software.
- e. Canva helps team collaboration by allowing users to invite others to edit or view their designs. For group projects or when working with colleagues or students in a collaborative setting, this is beneficial

2.3 How to Use Canva

Using Canva is straightforward and follows a few key steps:

- a. Visit the Canva website and sign up for a new account. You can choose to sign up with your email address or through your Google or Facebook account. Once signed in, explore the library of templates or search for a specific type of design you want to create. Select a template that suits your purpose or start with a blank canvas.
- b. You can use the drag-and-drop editor to customize the template or canvas. Add text, images, shapes, and other design elements. Adjust colors, fonts, and other visual properties to match your desired style.
- c. If you're working with images, you can upload your own images or choose from Canva's vast library of stock photos. You can edit the images, apply filters, crop, or resize them.
- d. Once your design is complete, you can download it in various formats, such as JPEG or PNG. Also, you can directly share your design with others through a link or by inviting collaborators.

2.4 Pros and Cons of Canva

Pros:

- Canva is user-friendly which makes it accessible to individuals with limited design experience or technical skills.
- The professionally designed templates in Canva save time and inspire creating visually attractive content.
- Canva enables teachers and students to effectively communicate ideas, concepts, and information through the designs.
- Canva collaboration features make it easier for teachers and students to work together on design projects, it supports teamwork and peer feedback.

Cons:

- While Canva provides a range of tailored options, the level of design options may be more limited than professional design software.
- Canva has limitations when working on complex design projects that require advanced design features or complicated layout adjustments.
- To use Canva effectively reliable internet access is necessary. Lack of internet connectivity can restrict access to designs and the design process.

2.5 Hints for an Effective Use of Canva

- a. Before starting a design project, it is important to clearly define the goals, purpose, and target audience.
- b. Personalize the designs Canva offers to make them more relevant and engaging for your students.
- c. Encourage students to explore different features, experiment with colors, fonts, and layouts, and release their creativity when designing visual content.
- d. Urge teachers and students to explore tutorials and support offered by Canva to enhance their proficiency with the tool.

3 EdPuzzle

3.1 What is EdPuzzle?

Edpuzzle is a platform that allows teachers to edit and share videos with their students. Edpuzzle stores videos that have been selected, uploaded, or even recorded, and edited by teachers.

3.2 Main Features of Edpuzzle

- a. Edpuzzle allows teachers to find, duplicate, and edit video material.
- b. Teachers can cut the video as much as needed, in order to get the perfect length.
- c. Teachers can add a voiceover to the video, to be able to change the language or vocabulary.
- d. Teachers can add questions to the video. They can choose to add either multiple-choice or open-ended questions to the chosen video, as well as notes, which can be written or even audio notes.
- e. Teachers can check students' progress by watching the video assigned to them and even if and how (and when) they answered the questions.

3.3 How to Use EdPuzzle

- a. To search for video material for their lessons, teachers can use the search bar and insert a subject, grade, and keyword. The Edpuzzle system will then show videos related to the chosen topic. But, unlike on other platforms, these videos will be suitable for school use. This is because Edpuzzle is a platform that has been created by teachers and for teachers, especially for didactic purposes.
- b. Once a teacher has found a video on Edpuzzle, they have the possibility to copy it and store it in their content Library.
- c. In order to add a question to the video, teachers will select the Add Question feature and then click on the minute of the video where they want to add the question.
- d. Now they can select the type of question (multiple choice, open-ended, or note) and then type the actual question.
- e. In case of multiple choice questions, answer options should be provided and, if needed, the correct answer should be marked.
- f. When students watch the video, the video will stop at this point and a window with the question will pop up. Students will be required to answer the question before they can move on with the video.
- g. Once teachers have selected and edited the video, they can share it with their students.
- h. In order to do so, they can create a Class on Edpuzzle or import one from another platform.
- i. Classes for Edpuzzle can be imported from other popular platforms such as Google Classroom or Edmodo, for example.

3.4 Pros and Cons of EdPuzzle

Pros:

- Edpuzzle only hosts videos suitable for education, making teachers' lives easier- when it comes to finding videos for the students.
- Through Edpuzzle teachers can easily edit videos and add questions and notes for their students.
- With Edpuzzle, teachers can share videos and monitor their students' learning.
- They can check whether their students have watched the videos and if the answers they provided were correct or not.

Cons:

- Teachers are able to check students' progress in watching the videos and in answering the questions, results included, only if students are regularly part of an Edpuzzle classroom.
- That means that students too will need to register on the platform by providing a valid email address and password. An alternative could be to use open classes if Edpuzzle is not (or not yet) part of the regular learning process.

3.5 Hints for an Effective Use of EdPuzzle

- a. Take some time to navigate Edpuzzle and try the different functions.
- b. Make sure you add an appropriate number of questions to the video according to the age and proficiency level of your students.
- c. Create a class on Edpuzzle and share the code with your students.
- d. Before assigning your first video, make sure every student in class has logged in and is able to use the platform.

3.6 A Sample Work for Edpuzzle

- a. Define learning objectives for your lesson and select a video aligned with them.
- b. Edit the video as needed, cutting it so that it is about 5 minutes long.
- c. Add notes and questions to the video. Make sure that the students have watched the video in order to answer the questions.
- d. Assign the video to your class and add a due date. Students have to watch the video before the next class.

- e. Monitor your students' learning and answers.
- f. Once in class, explain what is needed (according to the wrong answers provided by the students) and move on with the next class activities.

4 Kahoot

4.1 What is Kahoot?

Kahoot is an interactive learning platform designed to promote active learning and boost student engagement through gamified activities. Educators can create engaging quizzes, surveys, and discussions to intensify student participation and learning. Kahoot can be used in various educational settings, including classrooms, virtual learning environments, and professional development sessions.

4.2 The Main Features of Kahoot

Quizzes with multiple-choice questions, images, and videos that educators can customize to students' needs. They can also add a time limit for each question, making it more competitive and engaging for students.

- a. Kahoot turns learning into a game by presenting questions and answer options on a shared screen. Students can participate using their smartphones, tablets, or computers, selecting the correct answer within a given time frame.
- b. Kahoot provides instant feedback on students' responses to the questions. Educators can track individual and overall class performance, allowing them to identify areas of strength and weakness.
- c. Kahoot enables students to work together and discuss their answers. It promotes collaboration and teamwork, as students can engage in competition or form teams to compete against each other.

4.3 How to Use Kahoot

Using Kahoot is straightforward and user-friendly:

- a. Visit the Kahoot website (kahoot.com) and sign up for a free account. You can also access Kahoot through the mobile app available for iOS and Android devices.
- b. Once you've logged in, click on the "Create" button and select "Quiz." Enter the quiz details, including the title, description, and cover image. Add

your questions, answer options, and any multimedia elements you want to include.

- c. Customize the quiz settings, such as time limits for questions, the number of points awarded for correct answers, and whether you want to enable the leaderboard feature.
- d. Once you've finished creating the quiz, click on the "Play" button to launch the game. Share the game PIN or URL with your students to join the game on their devices.
- e. Students answer the questions, and their responses will be displayed on the shared screen. Afterward, you can review the results and provide feedback to students.

4.4 Pros and Cons of Kahoot

Pros:

- Kahoot's game-based approach makes learning enjoyable and interactive.
- The platform provides instant feedback, allowing teachers to assess students' understanding in real time.
- Educators can create custom quizzes tailored to their specific learning objectives and content.
- Kahoot motivates collaboration and discussion among students, promoting teamwork and social interaction.
- Kahoot is accessible on multiple devices, students can participate using their own smartphones or computers.

Cons:

- Kahoot quizzes are time-limited, which may create pressure for students who require more time to think and answer.
- Kahoot doesn't offer a wide variety of question formats, such as open-ended or matching questions.
- Kahoot's competitive nature may prioritize speed over deeper comprehension, which can undermine critical thinking skills.
- Using Kahoot requires access to devices with an internet connection, which may present challenges in certain settings or for students with limited access to technology.

4.5 Hints for an Effective Use of Kahoot

- a. Clearly define the learning objectives you want to achieve with Kahoot so that the game aligns with your instructional goals.
- b. Design visually appealing quizzes with clear and concise questions. Incorporating relevant images and videos can enhance engagement.
- c. Consider giving students a moment to read and analyze each question before answering. This helps them think critically and make informed choices.
- d. Use Kahoot as a springboard for classroom discussions by reviewing questions after the game. Support students to explain their reasoning and engage in peer-to-peer dialogue.

5 Mentimeter

5.1 What is Mentimeter?

Mentimeter is an app to create presentations with real-time feedback. Mentimeter allows teachers to get a variety of responses from the students, who use their devices to answer.

5.2 Main Features of Mentimeter

Mentimeter can be adapted to different class settings and purposes. Question types to choose from are Multiple Choice, Word Cloud, Open-Ended, Scales, Ranking, and Q&A.

- a. The multiple choice type is useful to ask students to express a preference among some given options, for example, a school trip. The results will be presented on the screen and different shapes are available: bars, pie, donuts, and dots. The preferred option as well as the colours can be selected in Design.
- b. Word cloud and open-ended are great options to conduct a brainstorming in class. Word cloud allows students to write words and expressions up to 25 characters. The words will be represented in different colours and, in case a word or short expression is written multiple times, it becomes bigger.
- c. With open-ended, on the other hand, students have the possibility to write longer texts, up to 200 characters.
- d. Scales and ranking can be used to ask students to express their opinions and, respectively, put elements on a scale or rank them.

- e. Q&A question type can be used to gather questions from (even shy) students. The teacher can then read aloud the most common/interesting questions and answer them orally.

5.3 How to Use Mentimeter

- a. In order to create a presentation, the teacher needs to have created an account on mentimeter.com.
- b. To create a presentation, the teacher can click on New Presentation and select a question type and a title.
- c. Every time a teacher creates a presentation, they will get a numeric code that can be shared with students, also through a QR code. Students can, using this code, write their answers, which will be visible on the teacher's device and can be (ideally) projected on a screen.
- d. There is also the possibility to create Quiz slides and in this case, teachers can choose between two options: Select Answer and Type Answer. In this case, it is possible for the teacher to mark the correct answer.
- e. A critical issue to pay attention to is that each code for a presentation expires after 48 hours. So, before using a presentation, teachers have to remember to refresh the page and enable voting.
- f. It is also to be kept in mind that, whereas teachers create presentations through their own account on mentimeter.com, students will use another address (menti.com) for answering the questions.

5.4 Pros and Cons of Mentimeter

Pros:

- Mentimeter is a tool that allows teachers to engage multiple students simultaneously.
- Mentimeter allows students to answer anonymously, which is great for shy or insecure students.
- If a student writes something inappropriate, the teacher can immediately erase it.
- Mentimeter allows for real-time feedback and, having different question types, can be very useful in different settings and for different purposes.
- Mentimeter presentations can also be shared through QR codes, making it easy for students to participate.
- Mentimeter is visual and catchy and its results can be downloaded, shared with students digitally or even printed.

- Mentimeter presentations can also be embedded into PowerPoint presentations.

Cons:

- Mentimeter is a Freemium program. With the free version of it, users are able to create unlimited presentations for an unlimited audience. The only limit is that, for every presentation, only two question slides and 5 quiz slides are allowed.
- Every Mentimeter code expires 48 hours after its last refresh.
- In order to use Mentimeter in class, the teacher and the students need an internet connection.

5.5 Hints for an Effective use of Mentimeter

- a. Before using Mentimeter, it is important to explain its use to the students.
- b. Carefully choose the question type according to your purpose.
- c. Make sure to refresh the code and enable voting before sharing the code in class.
- d. After having used Mentimeter for the first time (or times), reflect on the benefits of it.
- e. Print the results and post them in class, especially in the case of a Word Cloud.

5.6 A Sample Work for Mentimeter

- a. The teacher assigns a video to be viewed by the students.
- b. Once in class, the teacher shares a Mentimeter presentation of the Q&A type.
- c. Students write questions or doubts they have about the content they prepared for class.
- d. The teacher reads the questions aloud and answers/ explains again what is needed.

6 Sutori

6.1 What is Sutori?

Sutori is a collaborative instruction and presentation tool for the classroom.

6.2 Main Features of Sutori

- Sutori allows users to easily create stories which resemble a digital textbook and embed activities from other websites, such as Edpuzzle, Padlet, and Kahoot! These last and very interesting features can only be accessed through the Sutori unlimited account, which costs 120\$/year/educator as we write in 2023.
- With the free version, teachers can create stories, add text and images, share and collaborate, display stories full screen with the presentation mode, embed Sutori into other websites, invite students, and manage their work.

6.3 How to Use Sutori

In order to create a story on Sutori, teachers have to create an account by providing a valid email address and a password or they can access it through their Google/Outlook/Facebook account.

- a. Once in their own account, teachers can access their own stories and create new ones by selecting Stories and then Create Story adding as many pages as needed.
- b. Teachers can share their stories by inviting students through their email addresses, by providing them with a link, or by embedding the stories when needed.
- c. Stories can also be downloaded as PDF files and then printed, sent via email, or uploaded to school/class platforms.
- d. A Sutori story can be either private, secret, or public. If public, a story can be found by anyone browsing Sutori. If secret, anyone with the link can access it. If private, only people who have been directly invited can access it.

6.4 Pros and Cons of Sutori

Pros:

- Sutori allows you to gather not only written material but also images and videos in a single textbook.
- Students can also edit the stories and therefore work collaboratively. To do so, teachers should change the privacy settings of each story and decide whether students who can access the Sutori can only view or also edit.
- Teachers can also access and use stories created by other teachers.

Cons:

- The most critical issue in Sutori is definitely the fact that to access the most innovative features a paid account is needed.

6.5 Hints for an Effective Use of Sutori

- a. Use Sutori to create material for your students to study and deepen school knowledge.
- b. Include material taking into consideration the different learning styles of your students.
- c. Ask your students to use Sutori to gather research material.

6.6 A Sample Work for Sutori

- a. Use Sutori to share with students material to be studied in the pre-phase of an e-Flip lesson.
- b. Select a text, a video, and some images that will convey the same message.

7 Socrative

7.1 What is Socrative?

Socrative is a formative assessment tool that helps teachers and learners assess understanding and progress in real-time in class through the use of quizzes, questions, and reflection questions.

7.2 Main features of Socrative

- a. Socrative can be used to share questions through quizzes or exit tickets in class and get immediate feedback.
- b. Students can be required to answer individually (Quiz mode) or as a team (Space Race mode).
- c. The question types to choose from in Socrative are Multiple Choice, True/False, and Short Answer.

7.3 How to use Socrative

- a. In order to create a new quiz in Socrative, a teacher has to create an account. To do so they need to provide a valid email address and a password.

- b. The Socrative app will then create a web room for the teacher, where students will find activities, such as quizzes and exit tickets.
- c. On the contrary, students do not need to create an account, but only need to provide their teacher's room name and, if required, their first name.
- d. Teachers can create quizzes in the Library section, by clicking on the blue button Add and then New Quiz. Once the quiz has been created, it can be found in the library.
- e. Quizzes can be copied, shared, downloaded as PDF files, and thus printed and shared in class on paper.
- f. To launch an activity through Socrative in class, the teacher needs an internet connection and a device. The teacher clicks on Launch and then selects the quiz, space race, or exit ticket to be launched.
- g. Teachers can choose the delivery method among instant feedback, open navigation, and teacher-paced. With instant feedback, teachers have the possibility to shuffle question and answer order, making it more difficult for students to copy.
- h. Students use their devices to answer the questions.
- i. During the activity, the results are visible on the teacher's device in the section Results.
- j. The answers of the students are stored in the Reports section and can be viewed anytime later.
- k. Excel files with answer reports can be downloaded and sent per email to the students or parents (also possible with the free version of the account).

7.4 Pros and Cons of Socrative

Pros:

- Socrative can be used also without a screen where to project the questions since students will get the questions on their own devices.
- Socrative makes it more difficult to copy from peers since the questions and answer order can be shuffled.
- Students get immediate feedback and even comments from their teachers at the end of the quiz.
- Students can answer the questions at their own pace since there is no time pressure (speed does not have an impact on the results).
- Teachers can download the results and get an overview of students' understanding of the subject and progress.

- If there are problems with the internet connection, quizzes can be downloaded as PDF files, printed, and shared in class.

Cons:

- Compared to other quiz tools, Socrative is less fun and entertaining and its layout is pretty plain.
- In order to launch an activity on Socrative, both teachers and students need an internet connection.
- Socrative is a Freemium program and with the free version, it is possible to create 35 quizzes only. Of course, quizzes can be changed and erased when they are no longer needed in order to create new ones.

7.5 Hints for an effective use of Socrative

In order to successfully integrate Socrative, teachers should use it for formative assessment, to check students' progress and understanding. It can be used individually or as a group activity.

7.6 A sample Work for Socrative

- a. The teacher assigns a video to be viewed by the students.
- b. The teacher develops a quiz on Socrative with some questions (Multiple Choice, True/False, and Short Answer) related to the video.
- c. Once in class, the teacher launches the quiz and students answer.
- d. Through the Results page, the teacher can easily check which content has already been mastered by the students and which needs some more explanation. Before moving on to the next step of the lesson, the teacher spends some time explaining what is needed.

8 Nearpod

8.1 What is Nearpod?

Nearpod is an online tool that allows teachers to use slide-based teaching both in the classroom and remotely thanks to a hybrid layout.

8.2 Main Features of Nearpod

- a. Nearpod helps in making YouTube videos interactive.

- b. With Nearpod, questions can be added to videos to assess students' understanding and grasp of the knowledge.
- c. Nearpod also works with virtual reality, allowing students with VR headsets to explore an area or museum.
- d. Nearpod hosts a huge existing Library of more than 15000 videos and lessons that have been selected by teachers.
- e. Teachers can create a lesson from scratch or choose from the material available on the platform.

8.3 How to Use Nearpod

- a. In order to create and share content on Nearpod, teachers need to register on the platform by providing a valid email address and a password.
- b. Once they are in, they can add content using the Add Slide button, use the Content tab to engage students, and the Activities tab to find assessment tools to add in.
- c. Then they can add images, colour themes, and more, then save a project and it will appear in the library proper, ready for students.
- d. Students do not need to create an account on Nearpod in order to access it but only need to provide a lesson code.

8.4 Pros and Cons of Nearpod

Pros:

- Nearpod is a very effective tool to be used in an e-Flip session.
- It allows teachers to easily digitize content and monitor learning in the pre-, while, and post phases.
- Nearpod videos and material can be in fact used at home but also in class and even online.
- Nearpod can also integrate virtual reality.

Cons:

- The main issue of Nearpod is that with the free version, the so-called Silver, only 100 MB are available. This means that once a teacher and their students have become familiar with the tool, the choice is simply between upgrading the account or quitting.

8.5 Hints for an Effective Use of Nearpod

- a. Make sure your students are not using any similar tool.
- b. Spend some time in class to explain how Nearpod works.
- c. Start using material from the Nearpod library before creating your own.
- d. Use Nearpod for the first time in class, to make sure your students get all the support they need.

8.6 A Sample Work for Nearpod

- a. Select a video from Nearpod existing Library and add questions to it.
- b. Share the video in class and have your students answer the questions.
- c. Discuss the results and clarify/deepen when needed.

9 Edmodo

9.1 What is Edmodo?

Edmodo is a popular app for classroom management. Its layout is very similar to a famous social network- in the first version, even the colours were the same. Edmodo is specially designed to be user-friendly and thus very popular among older generations of teachers. This may be the reason for Edmodo's success, with over 100 Million registered users.

9.2 Main Features of Edmodo

Edmodo allows teachers to stay in touch with their students, by creating classes where to post messages and share files and assignments.

9.3 How to Use Edmodo

- a. In order to access Edmodo, teachers, students, and parents need to set up an account by providing a valid email address and a password. Users can also sign in through other websites, such as Outlook, Google, or Facebook. One thing to keep in mind is that one member cannot use the same account as a teacher, parent, or student. If one person is, for example, both a teacher and a parent, they will need to create two different accounts on Edmodo with two different email addresses.
- b. Teachers can create a class on Edmodo and add members by sending an

invitation via mail to the students or by sharing an automatically generated code with them. Once a classroom has been created, it is possible to connect parents and share material with the students and even homework and assignments. To share an assignment, teachers have to go to the Library and then click on Create New. Then they have to select one of their classes and post a quiz or an assignment, not forgetting to schedule a due date, and in the end, they can assess. Edmodo can be implemented with success to the e-Flip method in different steps. Digital content can be shared with the students in the pre-phase and in the post-phase teachers are able to share a quiz or an assignment that can be easily assessed online.

- c. In Edmodo, there is also a class chat, where both students and teachers can post.
- d. Parents can also, according to the classroom settings, view class content such as Material and Assignments.

9.4 Pros and Cons of Edmodo

Pros:

- Edmodo is free for school use, which means for teachers, parents, and students.
- Edmodo is very secure as a platform.
- Edmodo helps in keeping track of school materials and assignments.
- Edmodo is green since it avoids unnecessary printing.

Cons:

- A critical issue of Edmodo is that at the moment it is possible to join Edmodo only with an official school account.
- If a person is both a teacher and a parent, they have to create two separate Edmodo accounts.

9.5 Hints for an Effective Use of Edmodo

- a. Try to agree with the other class teachers on only one platform to be used with students to share material and assignments.
- b. If your students are new to Edmodo, make sure all of them have successfully registered into the platform and are familiar at least with its basic features before sharing material or assignments.
- c. Plan a trial phase, where students with difficulties getting into the platform can get material and submit assignments in another way.

- d. Keep the messages on the main page to a minimum.

9.6 A Sample Work for Edmodo

- a. Share with your students a simple text about holidays and ask them to write something similar regarding how they have spent their summer.
- b. Your students will submit their texts through Edmodo
- c. You can correct and evaluate them and in the end, provide some feedback.

10 Crowdsignal

10.1 What is Crowdsignal?

Crowdsignal is a tool that allows users to create and manage polls, surveys, quizzes, and ratings.

10.2 Main Features of Crowdsignal

- With the poll, users are allowed to ask one single question and define several answer options.
- With the survey, they are able to ask multiple questions from a wide range of question types.
- Survey question options on Crowdsignal are free text, multiple choice, matrix/likers, rank, and rating scale.

10.3 How to Use Crowdsignal

- a. In order to create and share a poll or survey on Crowdsignal, every user needs to set up an account by providing a valid email address and a password.
- b. Once a teacher has created a free account, they select Create Poll or Create Survey.
- c. Then they write the question or questions, add answer options, choose a style, and save the poll or survey.
- d. Surveys and polls can be shared with students via email, link, or QR code, but can also be embedded in a text or PowerPoint presentation.
- e. Results can be exported to Google Sheets or Excel.

10.4 Pros and Cons of Crowdsignal

Pros:

- Crowdsignal polls and surveys can also be shared through a QR code, which is a common way for students to access material.
- Crowdsignal polls and surveys are anonymous.
- Crowdsignal layout is modern and catchy.
- Before sharing a poll or survey, you can have a preview of the layout for laptops, tablets, and smartphones.
- Crowdsignal can be a very effective tool to collect feedback at school, for example about a lesson or session.
- Crowdsignal can be very much also used by students who want to conduct surveys for school research.

Cons:

- Every single vote on a survey or poll is called a signal, and with the free version of Crowdsignal users are allowed to collect up to 2500 signals.
- A critical issue is the limit of 2500 signals in the free version of the app. There is the risk that, once students and teachers get familiar with the app, they are obliged to upgrade or just quit using it.

10.5 Hints for an Effective Use of Crowdsignal

- a. Let your students use Crowdsignal first to vote on a poll or survey before they can move on and create and share their own.
- b. Show the results of the poll or survey in class.

10.6 A Sample Work for Crowdsignal

- a. Create a survey for your students to vote on how much they like your lesson and what can be improved, especially if you have recently tried new teaching methodologies such as e-Flip.
- b. Include matrix or likers and rating scales, as well as free text questions.
- c. Ask them to write what they like the most and what can be improved in the future.
- d. The results will help adjust your lesson to your students' needs and wishes.

11 Cacoo/Nulab

11.1 What is Cacoo/Nulab?

Cacoo is a web-based program that allows users to create and edit diagrams. It is now to be found under the name Nulab and the website nulab.com.

11.2 Main Features of Cacoo/Nulab

- a. Cacoo/Nulab offers a huge variety of diagram templates.
- b. There are more than 100 templates available for free. Some popular diagram templates are for example: Blank Fishbone, Brainstorm, Decision Flowchart, GANTT chart, Marketing Funnel, Mind Map, Sitemap, Six Thinking Hats, SWOT Analysis, Voting with emojis or with sticky notes, and many more.
- c. Teachers can decide whether they want to allow students (or anybody with the link) to only view or also edit the diagram.
- d. Diagrams can be exported in PNG, SVG, PDF, PS, or PPT format as well as printed.
- e. Diagrams can be shared with students as a link, as an image, or by embedding them.
- f. When sharing the diagram, it is possible to create a public link.
- g. Diagrams can also be presented full screen in class by using the Presentation mode.

11.3 How to Use Cacoo/Nulab

- a. In order to create a diagram on Cacoo/Nulab teachers need to register by providing a valid email address and a password.
- b. Once a teacher is logged in, they can create a diagram by selecting Create a diagram.
- c. On the left side of the blank sheet, some icons are now visible. By clicking on each of them, the teacher will be able to choose a template from the many available and then add text, new shapes, and arrows.
- d. It is possible of course to design a new diagram from scratch.

11.4 Pros and Cons of Cacoo/Nulab

Pros:

- Cacoo/Nulab is very intuitive to use. Click, double click, drag, and drop are the main features.

- Diagrams and mind maps are a great tool for visual learners and even for students with learning disorders.

Cons:

- Cacoo/Nulab is a Freemium program too and unfortunately, with the free version, it is only possible to create 6 diagrams and export them in PNG format.
- Cacoo/Nulab is slightly more business-oriented- than school-oriented.

11.5 Hints for an Effective Use of Cacoo/Nulab

- a. Consider carefully which topic could benefit from the use of diagrams.
- b. Ask your students to choose a template and fill it in.
- c. Remember to print the diagrams and post them in class or share them with your students in a digital format.

11.6 A Sample Work for Cacoo/Nulab

Ask students to study some content before class and following that, modify (collaboratively) a mind map created on Cacoo and add their own reflections or questions.

12 Microsoft Sway

12.1 What is Microsoft Sway?

Microsoft Sway is a web- tool that allows users to create visually appealing and interactive digital presentations, reports, newsletters, and more. It offers a platform for organizing and sharing content. Sway aims to simplify the process of creating professional-looking presentations, making them accessible to users with varying levels of design expertise.

12.2 The Main Features of Microsoft Sway

- a. A wide range of professionally designed templates to choose from.
- b. You can easily incorporate multimedia elements. This includes adding images, videos, audio clips, and interactive content like embedded tweets, surveys, or quizzes.
- c. A flexible layout system that allows you to arrange and reorganize content

effortlessly. It adapts the content to fit different devices and screen sizes, ensuring a consistent viewing experience across devices.

- d. It has a real-time collaboration feature, enabling multiple users to work on a presentation simultaneously. Users can easily share their presentations with others by providing a link or inserting them on websites or blogs.

12.3 How to Use Microsoft Sway

- a. Visit the Microsoft Sway website or open the Sway app on your device.
- b. Sign in or create an account if you do not have one.
- c. Start by selecting a design template that supports the purpose and style of your presentation.
- d. Click on the “+” button or use the suggested content options. You can upload images, videos, and audio files, enter text, and include interactive elements like polls or quizzes.
- e. Personalize the appearance by choosing a theme, modifying the colors and fonts, and adjusting the layout options. The content blocks can also be rearranged to create a logical flow.
- f. You can use the preview feature to see how your Sway presentation looks in real time. Make edits to the content, layout, or design to ensure that the presentation meets your goals.
- g. You can collaborate with others by inviting them to view or edit your presentation. You can share a direct link, publish it on the web, or insert it on other platforms. Your work can be viewed on various devices.

12.4 Pros and Cons of Microsoft Sway

Pros:

- It is visually great and has professionally designed templates, which makes it easy to create interesting presentations without any design skills.
- Sway allows users to create engaging presentations. The drag-and-drop functionality and automatic formatting smooth the creation process.
- You can incorporate a wide range of multimedia elements into your presentations.
- The automatic adaption to different screen sizes and devices ensures a consistent and optimized viewing experience.
- It enables real-time collaboration, making it easy to work on presentations with others. It also provides various sharing options, allowing users to share their presentations with a wider audience.

Cons:

- While Sway offers quite visually appealing templates, you have limited control over the design elements and may find it challenging to customize the look and feel to your exact preferences.
- You may come across limitations when it comes to advanced formatting options or precise control over the placement and alignment of content.
- Sway has limited integration options with other software or platforms, which may restrict collaboration with existing workflows.

12.5 Hints for Effective Use of Microsoft Sway

- a. Outline the structure and flow of your presentation beforehand to ensure a logical and coherent narrative. Sway's flexibility allows you to rearrange and reorganize content blocks easily, but a clear plan will help maintain consistency.
- b. Always leverage the power of visuals to enhance your presentation's impact. Choose high-quality images and videos that support your content and engage the audience.
- c. Deliver focused information to make your Sway presentation most effective. Keep your text brief and to the point, using bullet points, subheadings, and other formatting options to break down your ideas.
- d. Incorporate multimedia elements strategically to create an interactive experience.

12.6 A Sample Work for Microsoft Sway

While explaining the life cycle of a butterfly, use engaging visuals, concise text, and interactive elements such as quizzes and animations in Sway. In that way it is possible to take the viewer through the various stages of a butterfly's life, providing educational and visually appealing content.

13 Padlet

13.1 What is Padlet?

Padlet is an online collaborative platform that allows users to create digital boards, or "padlets," where they can share ideas, resources, and multimedia content. It serves as a virtual bulletin board and promotes collaboration, creativity,

and information sharing. Padlet can be used in various educational settings, to facilitate communication and engagement among students and teachers.

13.2 The Main Features of Padlet

1. You can create customizable digital boards, known as padlets, where you can post various types of content. These can include text, images, videos, documents, links, and more.
2. Padlet enables multiple users to contribute to a single padlet at the same time. This encourages teamwork among students and educators.
3. You can easily embed multimedia content from various sources, such as YouTube, Google Drive, and social media platforms. This allows for rich and interactive content sharing.
4. Padlet provides options to control the privacy and visibility of padlets. You can choose to make your padlets public, private, or password-protected, ensuring a safe and controlled sharing environment.

13.3 How to Use Padlet

1. Visit the Padlet website (padlet.com) and sign up for a free account. You can also download the Padlet app on your mobile device.
2. Once logged in, click on the “Create new padlet” button. Give your padlet a title and choose a layout that suits your needs. Padlet offers various layout options, such as a grid, blank canvas, or a stream.
3. You can customize the appearance of your padlet by choosing a background, adding a description, and selecting settings such as privacy and permissions.
4. Then start adding content to your padlet by clicking on the “+” button. You can add text, images, videos, documents, and links. Simply click on the respective content type and follow the prompts to upload or embed your content.
5. You can arrange the content on your padlet by dragging and dropping items to the desired positions. You can resize items, create columns, and adjust the layout to create an organized and interesting board.
6. Once your padlet is ready, share it with others by clicking on the “Share” button. You can invite students or peers by sending them a link or adding their email addresses. They can then contribute to the padlet by adding their own content or commenting on existing posts.

13.4 Pros and Cons of Padlet

Pros:

- Padlet promotes collaboration and active engagement among students and teachers, allowing for real-time interaction and feedback.
- Padlet can be used across subjects and grade levels, making it adaptable for various instructional purposes and learning activities.
- The ability to use multimedia content enhances the visual and interactive nature of Padlet and makes the learning experience richer.
- Padlet is accessible on multiple devices, including computers, tablets, and smartphones.
- Padlet offers privacy and security settings, allowing users to control who can access and/or contribute to their padlets.

Cons:

- Even though Padlet provides basic organization options, it may not be as robust as project management or collaboration tools for complex organizational needs.
- Padlet requires an internet connection for full functionality, which may limit its usability in areas with poor connectivity.
- The free version of Padlet has limitations on the number of padlets and the storage capacity available. Users may need to upgrade to a paid plan for expanded features and more extensive usage.

13.5 Hints for an Effective Use of Padlet

1. Set clear guidelines for student contributions and ensure that students understand how to use Padlet effectively for the specific learning task or activity.
2. Share examples of well-constructed padlets to help students understand the quality and depth of content expected from them.
3. Encourage students to collaborate and provide feedback to their peers' contributions on Padlet. This fosters a sense of community and active participation.
4. Design scaffolded activities that guide students through the process of creating meaningful contributions on Padlet. This can include prompts, guiding questions, or specific requirements for each post.

14 Quizlet

14.1 What is Quizlet?

Quizlet is an online learning platform that helps students study and review various subjects through flashcards, games, and quizzes. It is designed to provide an interactive and engaging learning experience. Quizlet offers a vast library of user-generated study sets covering a wide range of topics, making it a flexible tool for students of all ages.

14.2 The Main Features of Quizlet

- a. Users can create digital flashcards or access pre-existing flashcard sets uploaded by other users. Flashcards can include text, images, and audio.
- b. Learn mode that enables students to study their flashcards using various techniques, such as multiple-choice questions, matching exercises, and written tests. It incorporates learning algorithms to prioritize challenging concepts and reinforce mastery.
- c. Quizlet offers interactive games like Match, Gravity, and Quizlet Live, which transform studying into an engaging and competitive experience. These games motivate students to review content while having fun.
- d. Quizlet allows users to create and share study sets, making it a collaborative platform. Students and educators can create their own study materials or access and modify existing sets to suit their learning needs.

14.3 How to Use Quizlet

- a. Visit the Quizlet website (quizlet.com) or download the Quizlet mobile app for iOS and Android. Sign up for a free account to access the full range of features.
- b. Use the search bar to find relevant study sets created by other users or create your own sets.
- c. Open a study set and select the “Flashcards” option. Flip through the digital flashcards, reviewing the information on each side. You can use keyboard shortcuts or swipe gestures on mobile devices.
- d. Click on “Learn” to enter the Learn Mode. Quizlet will present flashcards one by one, testing your knowledge through various exercises. Respond to each prompt and you’ll receive immediate feedback.
- e. Explore the “Games” section to find interactive activities that make studying enjoyable. Choose a game, select a study set, and compete against the clock

or other players to reinforce your understanding.

- f. To create your own study set, click on “Create” and enter the relevant information. Add terms, definitions, and any additional media elements to enhance learning.
- g. Once you have created flashcards, you can share your study set with others.

14.4 Pros and Cons of Quizlet

Pros:

- Quizlet covers a wide range of subjects and offers a vast library of study materials created by users worldwide. It is accessible on various devices, making it convenient for students to study anytime, anywhere.
- Quizlet provides interactive study experiences through flashcards, games, and quizzes, making studying enjoyable for students.
- Quizlet allows students and educators to create and share study sets, encouraging collaboration and knowledge exchange within a community.
- The Learn Mode in Quizlet adapts to the user’s progress and focuses on challenging concepts, optimizing the learning experience.
- Quizlet supports the inclusion of images, audio, and other media in flashcards, enabling visual and auditory learners to enhance their understanding.

Cons:

- The quality and accuracy of study sets on Quizlet can vary as they are created by users. Students and educators should verify the accuracy of the information before relying solely on a study set.
- While Quizlet aids in memorization and recall, it may not facilitate deep conceptual understanding or critical thinking skills on its own.
- The availability of games and other interactive features may lead to distractions and decreased focus if not used responsibly.
- Quizlet requires an internet connection for full functionality, which may pose limitations in areas with poor internet access.

14.5 Hints for an Effective Use of Quizlet

To make the most of Quizlet in instruction, consider the following:

1. Guide students to actively engage with the material by creating their own

study sets, personalizing flashcards, and explaining concepts in their own words.

2. Incorporate reflection exercises alongside Quizlet, such as discussions or writing assignments, to promote deeper understanding and critical thinking.
3. Encourage students to collaborate and create study sets together. This fosters peer learning and strengthens their understanding of the content.
4. Remind students to critically evaluate study sets they find on Quizlet to ensure accuracy. Emphasize the importance of cross-referencing with reliable sources.

15 Trello

15.1 What is Trello?

Trello is a web-based project management tool. Its purpose is to simplify task management and enhance productivity by providing a flexible and user-friendly platform. Trello utilizes the concept of boards, lists, and cards to help users stay organized and track their progress.

15.2 The Main Features of Trello

- a. Trello provides a virtual canvas where users can create boards to represent different projects, departments, or areas of focus. Boards act as containers for organizing tasks and serve as a central hub for collaboration.
- b. Within each board, users can create lists to represent different stages or categories of tasks. For example, a board might include lists such as “To-Do,” “In Progress,” and “Completed.”
- c. Cards are individual units that represent tasks or items within a list. Users can create cards to represent specific tasks, add details, assign due dates, attach files, and include checklists to track progress.
- d. Trello offers the ability to add labels or tags to cards to help categorize and prioritize tasks. This feature enables users to visually identify different types of tasks or assign specific attributes to them.
- e. Trello allows users to add comments and have discussions directly on cards. Users can mention others using @mentions to bring their attention to specific tasks or updates. Notifications keep users informed about changes and activities related to their boards and cards.

15.3 How to Use Trello

- a. Visit the Trello website or download the mobile app and create a new account. You can sign up using your email address or Google account.
- b. Once signed in, create a new board by clicking the “+” button or selecting “Create new board.” Give your board a name and add a description if you wish.
- c. Customize your board by adding lists that represent different stages or categories of tasks. You can rename the default lists or create new ones.
- d. Within each list, create cards to represent individual tasks or items. Click the “+” button within a list and enter the title and any additional details for the card.
- e. Drag and drop cards to rearrange them within lists or move them to different lists based on their progress. You can use labels and tags to categorize and prioritize tasks.
- f. Invite team members to join your board and assign them to specific cards. Use comments and @mentions to communicate, provide updates, and track progress.

15.4 Pros and Cons of Trello

Pros:

- Trello provides a visual and flexible platform for organizing tasks and projects, which can help teachers and students stay focused and prioritize their work effectively.
- Trello enables collaboration among individuals or teams, allowing for easy sharing of tasks, updates, and files. This can enhance teamwork and streamline group projects.
- With features like due dates, checklists, and labels, Trello helps users manage and track their tasks efficiently, ensuring that nothing falls through the cracks.
- Trello is available on various platforms, including web, mobile, and desktop, making it accessible to users across different devices and operating systems.

Cons:

- Even though Trello is relatively intuitive to use, some users may require time to familiarize themselves with the interface and features. Training or resources may be needed to maximize its potential.
- Trello’s free version offers powerful functionality, but some advanced features,

such as custom fields or automation, are only available in the paid version (Trello Business Class or Enterprise).

- Trello is a cloud-based tool, so a stable internet connection is necessary to access and work on boards and cards. Offline access is limited, especially in the free version.

15.5 Hints for an Effective Use of Trello

To effectively integrate Trello into instruction, consider the following:

- a. You should offer clear instructions and training to teachers and students to ensure they understand how to use Trello effectively and take advantage of its features.
- b. You need to define a consistent approach for organizing boards, lists, and cards to promote uniformity and ease of use across different projects and classrooms.
- c. You must foster a collaborative environment by encouraging students to work together on shared boards, assigning group tasks, and facilitating discussions within Trello cards.
- d. You ought to regularly check and provide feedback on students' Trello boards to monitor their progress, identify any issues, and offer guidance as needed.

16 VideoAnt

16.1 What is VideoAnt?

VideoAnt is a digital tool to enhance video-based learning and analysis. It allows users to comment on and analyze videos to promote engagement and collaboration. VideoAnt allows you to timestamp comments, add notes, and ask questions directly on the video interface. This interactive approach allows users to provide feedback, share insights, and foster discussions around specific moments or sections of the video. The tool is widely used in education to facilitate collaborative learning, feedback, and discussion about video content.

16.2 Main features of VideoAnt

VideoAnt allows users to create a shared space for commenting on videos, enabling them to engage with the content and each other in an interactive way. The tool also offers a range of annotation features, including the ability to highlight

specific sections of the video and attach images, links, and other media to the annotations.

In addition, VideoAnt allows you to create and manage video playlists that can be shared with others. These playlists can be used to curate and organize video content, making it easier for users to find and access relevant material.

16.3 How to Use VideoAnt

Access the VideoAnt platform or application (<https://ant.umn.edu/>).

- a. Upload or link to a web-based video from platforms such as YouTube or Vimeo.
- b. Play the video on the VideoAnt interface.
- c. Pause the video at specific points of interest and add notes, comments, or questions related to that timestamp.
- d. Continue watching the video, adding annotations.
- e. Save your annotated video and share it with others so they can add their own annotations and join the discussion.

16.4 Pros and Cons of VideoAnt

Pros:

- Increased engagement: VideoAnt encourages active learning and participation by allowing users to interact with videos in meaningful ways.
- Collaborative learning: the tool facilitates group discussions and collaboration by allowing users to share annotated videos and join conversations about specific video moments.
- In-depth analysis: VideoAnt provides a platform for deep analysis and critical thinking by allowing users to annotate and reflect on specific parts of a video, encouraging a more detailed exploration of the content.
- Versatility: VideoAnt can be used in a variety of disciplines and fields where video analysis, feedback, and discussion are relevant, such as education, research, and training.

Cons:

- Dependence on the tool: users may become dependent on VideoAnt's specific features and functions which could limit their engagement with video content outside of the tool.
- Learning curve: Like any new software, VideoAnt may require some time and effort to learn how to navigate effectively and use all of its features.

- Accessibility limitations: depending on design and implementation, VideoAnt may have accessibility issues for individuals with visual or hearing impairments which could impact their ability to fully participate.

16.5 Hints for Effective Use of VideoAnt

Suppose a group of college students are studying a documentary as part of their course curriculum. The professor asks them to use VideoAnt to analyze and discuss the major themes and techniques of the film. Each student watches the documentary individually and adds comments on important scenes, highlighting specific shots, dialogue, or editing decisions. They also annotate each other's comments, providing insight, raising questions, or sparking discussion. Students' annotated video becomes a shared resource for further exploration and critical analysis, deepening understanding of the film and promoting group learning.

Overall, VideoAnt is a powerful tool for fostering engagement, collaboration, and critical thinking around video-based content, making it an excellent choice for teachers, students, and anyone interested in exploring and analyzing online video content.

17 Popplet

17.1 What is Popplet?

Popplet is a versatile digital tool that allows users to create visually appealing and interactive concept maps, mind maps, and brainstorming diagrams. It offers a user-friendly interface and is accessible through the website <https://www.popplet.com/> and mobile apps for iOS and Android devices.

17.2 Main features of Popplet

The main purpose of Popplet is to help individuals or teams organize their thoughts, ideas, and information in a structured and visual way. It is often used for educational purposes, such as classroom activities, lesson planning, and collaborative projects. However, it can also be used in a variety of professional contexts, such as project management, content planning, and problem-solving.

17.3 How to Use Popplet

Mind maps are a powerful and effective technique for organizing and visually

representing information. They serve as structured diagrams that help individuals explore and connect ideas in a non-linear way. In this technique, one starts with a central concept or keyword and then branches out into related subtopics or associations.

Through the use of branches, colors, symbols, and images, mind maps capture the relationships between different ideas and create a comprehensive overview of a topic. This technique enhances creativity and improves memory and comprehension.

The technique of mind mapping offers several advantages. It stimulates creativity, promotes holistic thinking, improves memory, and makes it easier to organize and understand complex information. Mind maps are versatile and can be used for brainstorming, planning, problem-solving, note-taking, and studying.

Benefits of using mind maps include:

- Increased creativity: mind maps stimulate creative thinking by encouraging the exploration of different ideas and their connections, leading to new insights and innovative solutions.
- Improved memory and retention: The visual nature of mind maps, along with the use of keywords and associations, helps with the retention and recall of information.
- Efficient organization: mind maps provide a clear and concise overview of complex topics or projects, making it easier to understand relationships, identify gaps, and prioritize tasks.
- Collaboration and Communication: mind maps can be shared and edited, allowing teams to effectively brainstorm, plan, and share ideas.

Overall, mind maps are a technique that harnesses the brain's natural thought processes and visualizes information in a way that promotes understanding, creativity, and memory. By using this technique, individuals can unlock their full cognitive potential and effectively navigate complex ideas and projects.

17.4 Pros and Cons of Popplet

Pros:

- Visual organization: Popplet allows users to visually represent concepts, connections, and relationships, making it easier to understand complex information and identify patterns or gaps.
- Collaboration: multiple users can collaborate in real-time on a Popplet board, enabling effective teamwork and idea sharing. This feature is especially beneficial for remote or distributed teams.

- **Flexibility:** Popplet offers a number of tools and features that allow you to customize the look and layout of your boards. Users can add text, images, and videos and draw directly on the canvas, making content creation very flexible.
- **Accessibility:** Popplet is free and available on different platforms, including web and mobile, so users can access and work on their projects from different devices.

Cons:

- **Limited complexity:** while Popplet is great for organizing and visualizing simple to moderately complex ideas, it may not be suitable for managing very complicated or large projects.
- **Online dependency:** an internet connection is required to use Popplet. This can be limiting in certain situations such as in areas with poor internet connectivity or when working offline.

17.5 Hints for Effective Use of Popplet

Suppose you are a teacher and you are planning a lesson about the solar system. You can create a Popplet board with “Solar System” as the central theme, covering different planets, their properties, and related concepts such as orbits, moons, and exploratory missions. You can add images, descriptions, and even videos to each node to create an engaging visual representation of the lesson content. This can help explain complex ideas, facilitate discussions, and help students understand the connections between the various components of the solar system.

18 Plickers

18.1 What is Plickers?

Plickers is a digital tool that improves classroom engagement and collects formative assessment data in real-time. It provides teachers with a unique way to assess student understanding using a combination of printable cards, a mobile device or tablet, and a web-based interface.

18.2 Main features of Plickers

The primary use of Plickers is to conduct quick, anonymous quizzes or surveys during class. Each student receives a unique printed card called a “plicker,” which resembles a QR code with four sides (A, B, C, and D). The teacher asks a multiple-

choice question, and students indicate their answer by holding their plicker card with the correct side facing up. The teacher then uses a mobile device with the Plickers app to scan the room and capture all answers instantly. The data is then displayed on the teacher's device, providing immediate feedback on student understanding.

18.3 How to Use Plickers

- a. The teacher creates an account on the Plickers website (<https://get.plickers.com/>) and sets up their class. They can add student names or assign unique identifiers to each student.
- b. The teacher prints a series of Plickers cards, one for each student. Each card is a unique QR code with four pages labeled A, B, C, and D. These cards can be reused for multiple assessments.
- c. The teacher prepares multiple-choice questions to ask students during a lesson. The questions can be created on the Plickers website or through the mobile app.
- d. During the lesson, the teacher presents the multiple-choice questions to the students either orally or on a screen. Each student holds up their Plicker card with the page corresponding to their chosen answer.
- e. The teacher uses a mobile device or tablet with the Plickers app installed to scan the room. The app uses the device's camera to capture students' Plickers cards. As the teacher scans, the app records students' responses in real-time.
- f. The app immediately analyzes the collected data and displays the results on the teacher's device. The teacher can see the distribution of answers, individual student responses, and the overall understanding of the class.
- g. Feedback and discussion: based on the data analysis, the teacher can give immediate feedback to the students. He can address misconceptions, encourage class discussion, or decide whether to continue with the lesson based on how well students understood the material.
- h. Data storage and Tracking: Plickers allows teachers to track student performance over time. Data from each assessment is stored so teachers can monitor individual progress and identify areas for improvement.

It's important to note that Plickers requires an Internet connection to set up the class and access the data analysis features. However, once the questions and cards are printed, scanning and data collection can be done offline using the Plickers app on the mobile device.

18.4 Pros and Cons of Plickers

Pros:

- **Simplicity and accessibility:** Plickers requires minimal setup, making it easy for teachers to integrate into their classrooms. Printed Plicker cards can be reused, so students do not need additional technology or equipment.
- **Real-time feedback:** Plickers provides instant data analysis, allowing teachers to immediately assess student understanding and make informed instructional decisions.
- **Engagement and participation:** Plickers brings fun and interactivity to the classroom by turning assessment into a game-like activity. Students enjoy putting their Plicker cards in their hands and seeing their answers in real-time.
- **Anonymity:** Plickers allows students to answer anonymously, reducing the anxiety associated with answering publicly. This feature encourages all students to participate, even those who may be hesitant to give their answers in front of the class.

Cons:

- **Limited question types:** Plickers is designed primarily for multiple-choice questions, which may limit the range of assessment formats that can be used. It is less suitable for open-ended or subjective responses.
- **Dependence on a mobile device:** Although the Plickers app is available for both iOS and Android, it requires the use of a mobile device or tablet to scan and capture student responses.

18.5 Hints for Effective Use of Plickers

Let's imagine an elementary school. The math teacher wants to check his students' understanding of addition and subtraction. They have prepared a set of math problems to assess the students' skills. The teacher proceeds as follows:

- a. **Set up:** The teacher logs into their Plickers account and adds their class. They print out the Plickers cards and make sure each student has their own card.
- b. **Presenting the Task:** The teacher displays a math problem on the board or presents it orally to the class. For example, the task might be "What is the sum of $7 + 4$?"
- c. **Student response:** Each student holds up his or her plicker card with the side that represents his or her answer facing up. If a student thinks the correct

answer is 11, he or she holds the card with the '11' side facing up.

- d. Scanning and data collection: using the Plickers app on their mobile device, the teacher scans the classroom and records the students' answers using the Plicker cards. The app records the responses and compiles the data.
- e. Data analysis: the app analyzes the collected data and provides the teacher with the results in real-time. The teacher can see the distribution of answers and identify any misconceptions or areas where students are struggling.
- f. Individualized feedback: based on the data analysis, the teacher can provide individualized feedback to each student. He or she can identify those who answered incorrectly and offer them specific guidance or support.
- g. Group discussion: the teacher initiates a class discussion based on the results. He or she can highlight different approaches to solving the problem, address common errors, and reinforce the correct strategies.
- h. Continued assessment: the teacher sets more math problems and repeats the process of setting the problem, collecting student responses, scanning, and analyzing the data. This allows for ongoing assessment and adjustment of instruction as needed.

By using Plickers in this scenario, the teacher can actively engage students in mathematical practice, receive immediate feedback on their problem-solving skills, and adapt their teaching methods to meet individual and class-wide needs.

19 MeetingWords

19.1 What is MeetingWords?

MeetingWords (<http://meetingwords.com/>) is a digital tool that enables real-time collaborative text editing and note-taking during meetings, discussions, or brainstorming sessions. It provides an easy-to-use interface for many users to simultaneously contribute and collaborate on a shared document.

19.2 Main Features of MeetingWords

- a. MeetingWords allows you to take notes, share ideas, or edit during a meeting.
- b. MeetingWords operates in real-time, any updates made by one user are immediately visible to all other users.
- c. Each user has his own color of writing in order to avoid confusion.

19.3 How to Use MeetingWords

- a. Visit the MeetingWords website (<http://meetingwords.com/>) and click the “Create a public pad” button. No registration is needed.
- b. You can start writing your text by adding your name or title in the right column.
- c. Invite others by sending the link in order to work together.
- d. The changes are visible in real time for all the users that participate.
- e. You can import files and export the pads.
- f. Share the final document with others by clicking “Share this pad”.

19.4 Pros and Cons of MeetingWords

Pros:

- No registration is required.
- MeetingWords allows many participants to work on the same document at the same time, facilitating instant updates and encouraging collaboration
- MeetingWords has a user-friendly interface and is accessible to all without need of technical knowledge.
- MeetingWords is accessible from any location offering convenience and flexibility.
- MeetingWords is secure as does not collect personal information.

Cons:

- MeetingWords needs a stable Internet connection in order to use it and work individually or with others.
- MeetingWords is a very simple tool without many features like graphics, videos, or other multimedia elements failing in the visual appearance of the texts.
- MeetingWords does not offer a long-term storage of the documents.
- Pads will be deleted after the completion of seven days.

19.5 Hints for Effective Use of MeetingWords

Consider a group of team members that have to work together to develop an agenda for an upcoming event. Using MeetingWords can easily collaborate in one document using different colours of writing in order to know what is written by whom. In real-time all the members can see the contributions of all. When

they finish, the team members can share the pad with their coordinator to ask for confirmation.

20 Flipsnack

20.1 What is Flipsnack?

Flipsnack is a digital tool that allows users to transform boring documents into interactive flipbooks, magazines, brochures, etc. If you want to create appealing digital content give it a try as it is user-friendly and has lots of customizable concepts and features.

20.2 Main Features of Flipsnack

- a. Transformation of static PDFs into interactive publications.
- b. Flipsnack offers a variety of fonts, colors, layouts, and multimedia elements such as videos, audio files, and hyperlinks.

20.3 How to Use Flipsnack

To create a flipbook with Flipsnack, follow these steps:

- a. Visit the Flipsnack website (<https://www.flipsnack.com/>) and create an account.
- b. Once you've logged in, click on the "Create a new project" button creating either your entirely new flipbook or choosing from the existing templates
- c. After you select a template, you'll be redirected to the Flipsnack editor. Here you can customize your flipbook by adding content, changing layouts, adjusting colors, and more.
- d. You can add pages to your flipbook by clicking the "Add New Page" button in the editor.
- e. To add content to your flipbook, you can upload images, PDFs, or other supported file formats by clicking the "Upload" button in the editor, selecting the files you want and they'll be added to your flipbook.
- f. You can add multimedia elements such as videos, audio files, and hyperlinks.
- g. Once you've finished designing your flipbook, you can share it by clicking the "Publish" button and easily send it via its unique link.

20.4 Pros and Cons of Flipsnack

Pros:

- Flipsnack is very easy to use as it has a user-friendly character.
- Flipsnack offers a wide range of interactive elements such as videos, audio files, and hyperlinks that allow users to create engaging and interactive content.
- Flipsnack provides analytics as well as options to share publications via social media, email, or embedding in websites.

Cons:

- Flipsnack is not for free. It offers a free subscription but it has limitations in terms of features, customization options, and the number of publications that can be created.
- Flipsnack needs a stable Internet connection to create and access publications.
- Flipsnack's basic features are easy to understand but using advanced features may require some learning and experimentation.

20.5 Hints for effective use of Flipsnack

Consider you're a history teacher and want to teach your students for an important history period. You can create your Flipsnack lesson about it. After your registration, you can select which template is most suitable for this and by adding key characteristics, videos, and animations. Your lesson simply becomes more attractive and engaging. Then, to boost the learning experience of the students, you can create quizzes based on the history period that they learned by participating actively. Share your Flipsnack link with the students allowing them to get inspired and used to this method of teaching.

CHAPTER VIII

Elisabetta Bergia, Marta Codina, Federico Fletschia, Maite Garcia, Eva Ladňáková

e-FLIP in Action

1 Lesson Plans and Exemplary Practices

The following lesson plans represent examples of e-FLIP Model implementation into practice of vocational education and training in school environments. It may be an inspiration to every teacher who would like to develop his/her own way of incorporating the Model into the educational process.

The list of lesson plans:

1. ITALY – I.I.S. Grandis
[The Berlin Wall](#)
2. ITALY – I.I.S. Grandis
[Professional terminology of hotel front desk](#)
3. SPAIN – Institut Guillem Catà
[Technical English: Carpentry](#)
4. SPAIN – Institut Guillem Catà
[Hairdressing and Styling](#)
5. SLOVAKIA – Súkromná stredná odborná škola Pro scholaris
[Guide services](#)
6. SLOVAKIA – Súkromná stredná odborná škola Pro scholaris
[Slovak vs. Spanish Cousine](#)



**Istituto d'Istruzione Superiore
"SEBASTIANO GRANDIS"
Cuneo**



Facilitating e-Learning for an Inclusive Pedagogy
2021-1-SK01-KA220-VET-000034712



**e-FLIP TEACHING ACTIVITY
THE BERLIN WALL**

Activity overview

The aim of the unit is the same of the classroom, so to let students know the modern history of Europe, in particular the period from 1961 to 1989. Videos, extracts, and visual tasks will be as short as possible and will contain the most significant events. In addition, keywords will be highlighted. Plan targeted activities in preparation for the test. In order to do that, teachers will use the basis of Bloom's Taxonomy.



Phase 1 (pre)

Main objectives	Know the modern history of Europe, in particular the period from 1961 to 1989.
Content	The history of Berlin Wall (EDPUZZLE); Kennedy's speech "Ich bin ein Berliner" (VIDEOANT) and tapescript (WORD); film review "Goodbye Lenin" (WORD and YOUTUBE); Works of Art made by Thierry Noir, book review "Noi i ragazzi dello zoo di Berlino" (WORD); Rostropovich Cello for the fall of the wall (YOUTUBE).
Digitalization of content	Encourage the organization of content according to relevant paths and curricula to present the actual starting situation of the students. All the contents are studied to be collaborative and interactive, with structure and/or articulation different from that administered to the group or to other students, however, they refer to the same level and scope of content of the training standard. Every new material will be sent by the teachers through a link and at the end, they will be all uploaded on BLANDSPACE to collect everything.
Monitoring learning	Videos have been created through VIDEOANT and EDPUZZLE; the teacher structures the activities in such a way as to provide a minimum program with the search for essential contents by structuring an equivalent program with the partial reduction and/or replacement of the contents, seeking the same educational value. Programming and



**Istituto d'Istruzione Superiore
"SEBASTIANO GRANDIS"
Cuneo**



	educational and didactic interventions are calibrated on individual cognitive abilities in order to achieve the objectives.
Activity links	Interactive video: il Muro di Berlino https://edpuzzle.com/media/63a199d387ba7e412fb13d07

Phase 2 (while)

Engaging activity	Since learner engagement is a key factor in learning, it is even more so for students with disabilities. The methodological approach is mainly practical, operational, simplified, and concrete. We are constantly trying to involve the students with disabilities in the teaching activity carried out in the classroom, leveraging their preferences, as well as the need to ensure full integration and socialisation.
Coaching students	All the activities have been created according to the active participation of all the students, in order to let them learn in an optimal way and activate their learning process.
Design assessment	Provide opportunities to give feedback on learning activities; prompt and to the point; comprehensive to all, positive parts before and then the negative side.

Phase 3 (post)

Reflection	give learners tasks to reflect on their learning activities to strengthen the learning.
Further learning	Digitalized learning activities to strengthen the learning (ex. Homework); it must be fun, entertaining and collaborative.
Assessment	Extended/delayed assessment tasks could be created if needed and they can be recycled.
Monitoring	Monitor all after the lessons activities and provide extra support if needed.



**Istituto d'Istruzione Superiore
"SEBASTIANO GRANDIS"
Cuneo**



Facilitating e-Learning for an Inclusive Pedagogy
2021-1-SK01-KA220-VET-000034712



e-FLIP TEACHING ACTIVITY

Activity overview

This activity (implementing the model shared by our Turkish partners) is targeted at students of the 3rd year of the tourist technical course (16-17 years old pupils). The main subject involved is English language, with help from the ICT lab teacher and from the class support teacher who assists students with special needs.



Students are being asked to watch at home some short videos featuring dialogues taking place at the reception desk of a hotel. Those clips are made interactive by adding questions that pop up during the reproduction.

In class students are asked in pairs to simulate dialogues at the reception desk of a hotel. Several skills are being measured and assessed to give them feedback. The activity ends with student reflection and self-evaluation and with another activity which introduces the next topic.

Phase 1 (pre)

Main objectives	Understanding the professional terminology of hotel front desk. Comparing professional attitudes among cultures.
Content	Selected videos found on services such as YouTube with dialogues and situations.
Digitalization of content	Videos are posted to EdPuzzle with inline questions. Students have to watch them and answer the questions at home.
Monitoring learning	Through EdPuzzle we are able to know which students did watch the video and to assess their understanding of the concepts.
Activity links	<p>Situations at the hotel front desk Checking into a hotel https://edpuzzle.com/media/628e591626e00940d9bf9402</p> <p>Hotel problems https://edpuzzle.com/media/628e574a0132b9413c3bb7ee</p> <p>Video selected for a SEN student. https://edpuzzle.com/media/628e5f41abe43a414594b888</p>



Istituto d'Istruzione Superiore
"SEBASTIANO GRANDIS"
Cuneo



Phase 2 (while)

Engaging activity	Students in pairs simulating the different situations and dialogues at the hotel front desk.
Coaching students	Students are given timely feedback on pronunciation, linguistic register, and body language
Design assessment	During the oral speaking activity, the following skills are being assessed: <ul style="list-style-type: none">- lexicon, sentence morphology and syntax- use of professional micro-language- interpretation of the role of a front desk receptionist
Activity links	Survey on Mentimeter about words related to hotels and to self-perception of knowledge. https://www.menti.com/4y94iavyqc Real-world based task: dialogue at the hotel for a SEN student Click here to watch the video



Phase 3 (post)

Reflection	Each student is given a self-evaluation survey about how he rates his performance and what he thinks can be furtherly improved.
Further learning	Activity: <i>You have to take a flight. In preparation, you watch the safety instructions video from an anglophone air company to learn more.</i> This activity is preparatory to the next one. At the hotel desk nobody ever invites you to read carefully and understand the safety instructions, usually situated behind the room door. American Airlines. (2016, September 22). <i>American Airlines Safety Video</i> [Video]. YouTube. https://www.youtube.com/watch?v=LXb28mVZijo

Inclusion

In the class we have a student with special needs. She will work on the same subject (with different contents), and she will play the situation at the desk of a real hotel. Her speaking activity will be recorded and shared with her family using ClassDojo.

The support teacher plays a significant role in adapting the contents and the learning strategies to the needs and attitudes of the pupil, ensuring she can also work well with her classmates.

 <p>Generalitat de Catalunya Departament d'Educació Institut Guillem Catà</p>	<p>INSTITUT GUILLEM CATÀ</p>	
--	---	---



Facilitating e-Learning for an Inclusive Pedagogy
2021-1-SK01-KA220-VET-000034712



e-FLIP TEACHING ACTIVITY

Activity overview

This activity is targeted at 1st year Carpentry Vocational training students (16-17 years old). The main subject involved is Technical English language.

Students are being asked to write formal professional emails in a role play activity. This activity will involve, not only their communication and digital skills, but also their problem solving and interpersonal skills.



Phase 1 (pre)

Main objectives	<ul style="list-style-type: none"> - Writing an efficient, professional email. - Learning the most important conventions in formal emails. - Getting to know the structure of an email. - Getting to know useful language structures in formal texts.
Content	<ul style="list-style-type: none"> -Communicative purpose of the textual elements and the way of organizing the information by distinguishing the parts of the text. -Coherence and cohesion in text development: text type and format. Language variety. registration Lexical selection, syntactic structures and relevant content.
Digitalization of content	<p>The students are going to use an interactive presentation on how to write a formal mail. They will go through the presentation at home and, in class, they will do 2 engagement activities to put what they have learned into practice.</p> <p>Link to finished content: https://view.genial.ly/632341f4e49d13001815f6ae/presentation-writing-an-email</p>
Monitoring learning	<p>The following aspects about students' work will be monitored:</p> <ul style="list-style-type: none"> • Number of times the presentation is watched (source Moodle Classroom) • The students comments/feedback/questions (source Moodle Classroom)



Phase 2 (while)

<p>Engaging activity</p>	<p>At home</p>	<p>Sts watch the presentation. They can watch it as many times as they need according to their learning needs.</p>
	<p>in class / individual</p>	<p>Role Play: Students have to write a formal email to an online Carpentry hardware and crafts shop complaining about the bad delivery of some goods they had previously purchased. They will have to follow the language conventions described in the presentation.</p>
<p>Coaching students</p>	<p>Task 1:</p> <p>While the students get down to work, the teacher will be free to move from group to group to guide the students in the project, especially those with learning needs.</p>	
<p>Design assessment</p>	<p>Students' self-assessment: Before submitting their task, the students will assess their work with the help of a checklist.</p> <p>https://forms.gle/W2K7AvvtQNmEvGAJ8</p> <p>Teacher's assessment: Two different rubrics to assess the students' performance have been created with the CoRubrics App</p> <ul style="list-style-type: none"> - CONTENT AND ORGANIZATION OF AN EMAIL RUBRIC: <p>https://forms.gle/OMdW3czLFiK3nvU1A</p> <ul style="list-style-type: none"> - USE OF LANGUAGE RUBRIC <p>https://forms.gle/c2mRufNCGfgwJaDM6</p>	
<p>Feedback</p>	<p>The assessment rubrics allow the students to see timely feedback of their work once it has been corrected.</p>	

Phase 3 (post)

Reflection	<p>Padlet will be used to ask the students to rate the following aspects:</p> <ul style="list-style-type: none"> • What have you learnt? • Why is it useful for your professional development? <p>https://padlet.com/mcodin111/iwvg6b0bfb3f9ue5</p>
	<p>The Padlet will be answered in class and all the answers will be read so it will give them the chance to share and discuss their point of view with their peers.</p>
Further learning	<p>Task 2</p> <p>ROLE PLAY: Students role play the part of the Head of Sales at The Carpentry Store and reply apologizing for the inconvenience and offering to fix the problem.</p>
Assessment	<p>The teacher uses the same assessment tools as in Task 1.</p>

Inclusion

Students with special need will be able to access the contents of the task at home and come better prepared for the class activity. The presentation is quite clear and offers guidelines of what should be done in every step of the task. Furthermore, there are a lot of language examples that they can easily adapt in their mail. Moreover, preparing the contents before the class, on their own, will help them to feel more confident in front of their peers.



Lesson Plan © 2022 by [Facilitating e-Learning for an Inclusive Pedagogy 2021-1-SK01-KA220-VET000034712](#) is licensed under [CC BY-ND 4.0](#).



Generalitat de Catalunya
Departament d'Educació
Institut Guillem Catà

**INSTITUT
GUILLEM CATÀ**



Facilitating e-Learning for an Inclusive Pedagogy
2021-1-SK01-KA220-VET-000034712

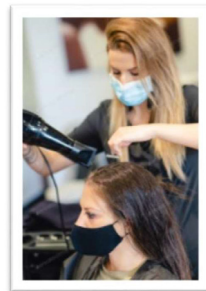


e-FLIP TEACHING ACTIVITY

Activity overview

This activity is targeted at students of the 2nd year of Hairdressing and Styling (17-18 years old pupils). The main subject involved is Procedures and Techniques.



Students are being asked to watch at home some videos about how the techniques are performed and they will have to create their own procedure protocols.



Phase 1 (pre)

Main objectives	<ul style="list-style-type: none"> • Practice their organisational and leadership skills • Practice their IT skills • Search for relevant information on the internet
Content	Getting to know the most important techniques and procedures.
Digitalization of content	<p>The students are going to use the following web2 tools:</p> <ul style="list-style-type: none"> • Google Classroom • Padlet • Web design Apps • Google Forms • Canva
Monitoring learning	<p>The following aspects about students' work will be monitored:</p> <ul style="list-style-type: none"> • Number of times the video is watched by each student • The students comments/feedback/questions (source Moodle) • Quality and creativity of the Digital Protocols (Padlet) • Student's self- assessment (CoRubrics) • Peer assessment (Padlet)



 <p>Generalitat de Catalunya Departament d'Educació Institut Guillem Catà</p>	<p>INSTITUT GUILLEM CATÀ</p>	
--	---	---

Phase 2 (while)

This is a recurrent activity to be done along the school year. In fact, it is more a methodological approach. The students are training to be technical heads of staff in a Hairdressing saloon and will be responsible for the establishment of the procedures and the quality standards of all their team. We are going to focus on one particular protocol in this lesson plan.

<p>Engaging activity</p>	<p>At home</p>	<p>Students watch the video tutorial and the Power Point presentation about creation of protocols on their Google Classroom. They can watch them as many times as they need. Google Classroom : https://classroom.google.com/c/NTM0NzEzNzU2MjJz?cjc=yco7wd3</p> <p>Video tutorial: https://www.loom.com/share/0c810dc9a1404626a5d4b69ce24a702c</p>
	<p>in class / individual activity</p>	<p>Students create a protocol for the techniques to be followed by their staff. They can use Canva or any other image edition tool of their choice. Once each of the protocol is finished, it has to be uploaded on the following Padlet: https://padlet.com/mgarci761/ajzbdd7fgs2g54tk</p> <p>They also have a podcast on how to use Padlet available on their Google Classroom: https://www.ivoox.com/instruccions-padlet-audiosmp3_rf_88710041_1.html</p>
<p>Coaching students</p>	<p>The teacher will post all the necessary information on the Google Classroom and will explain the activity to the whole class. As the techniques explained by the teacher are also recorded and accessible on Google Classroom, the students can go back to them anytime to refresh the instructions. Besides, during the working sessions in class, the teacher will be free to move from group to group to guide the students in the project, especially those with learning needs.</p>	
<p>Design assessment</p>	<p>The assessment will be done both by the teacher and the rest of students in the group (self-assessment) through the Padlet qualifying tool (stars rating scale). https://ca.padlet.com/mgarci761/ajzbdd7fgs2g54tk</p>	
<p>Feedback</p>	<p>During the project, the students are able to communicate with the teacher both in class and through the Google Classroom forum when they are working at home. The questions and answers are visible to all the group, so all the students can profit from them.</p>	

Phase 3 (post)

Reflection	<p>As this is an activity that will be done throughout the school year, the students are asked to create a learning diary/portfolio of their process. This tool promotes reflection on how and what you have learned. It also provides information on the progress of studies and thereby encourages and motivates. To do the portfolio, students are free to use any web2 tool of their choice (Canva, Wix, Google Drive). It must contain a short reflection on the following items:</p> <ul style="list-style-type: none"> • What have you learned? • What things can/must be improved? • What materials and web2 tools have been useful? • Are you getting better? How?
Further learning	<p>Students will be asked to put the protocols into practice with the help of their classmates in a roleplay activity: Student A (acting as staff member) will have to follow the protocol created by student B (acting as technical manager) during the practical sessions with real customers. Student B will be acting as a supervisor so she/he will be aware of the shortcomings in his/her protocol. He/she will also have to complete an observation grid that will guide him/her in the process.</p>
Assessment	<p>The assessment will be done with the help of an observation grid that will be answered by the teacher and both the students performing the role-play:</p> <p>https://forms.gle/qVmSRgHApCQIGiTu8</p>

Inclusion



Students with special needs will benefit from the activity in different ways.

On the one hand, being able to access the contents of the task at home, helps them come better prepared for the class activity. They can set their own learning pace, watching the video as many times as they need and with the help of audiovisual content that gives an answer to different learning abilities. Moreover, preparing the contents before the class, on their own, will help them to feel more confident in front of their peers.

On the other hand, watching their colleagues perform the techniques will allow them to observe how the process is done, thus allowing peer tuition.



Lesson Plan © 2022 by [Facilitating e-Learning for an Inclusive Pedagogy 2021-1-SK01-KA220-VET000034712](#) is licensed under [CC BY-ND 4.0](#)

 <p>PRO SCHOLARIS ŠKOLA</p>	<p>Súkromná stredná odborná škola Pro scholaris Žilina-Bytčica, Slovakia</p>	
--	---	---



Facilitating e-Learning for an Inclusive Pedagogy
2021-1-SK01-KA220-VET-000034712



e-FLIP TEACHING ACTIVITY

Activity overview

This activity (implementing the model shared by our Turkish partners) is targeted at students of the 3rd year of the Management of regional tourism course (16 -17 years old pupils). The subject matter is Guide services with 9 students.

Students are asked to study the topographic and chronological preparation of the guide, which was published on www.sutori.com but also on the intranet platform of our school www.nastuduj.sk until the next contact lesson. These materials were made interactively by adding quiz directly in the Sutori platform and questions by Slido.com. Students are asked to create a simple work diary. They have 1 week to read all of the documents.





After coming to school they work in groups in order to complete an itinerary – the 11th slide from the presentation in Canva, which the students have at their disposal. They are also asked to create a promotional material for their tour and it will be evaluated by students from other groups. Several skills will be measured and assessed to provide the teacher's feedback. The activity ends with students' reflection and self-evaluation and with another activity which introduces the next lesson.

Phase 1 (pre)

Main objectives	Understanding the topographical and chronological preparation. Create an itinerary according to the given topic.
Content	We use the flipbook created within the previous Erasmus+ project (TRIP), flipbook presentation in Canva, template of the tour and a free model of an itinerary.
Digitalization of content	<p>The materials were posted to anyflip.com, Canva and Padlet. The additional tasks were made by Sutori and Slido. Students have to read them and answer the tasks at home.</p> <ol style="list-style-type: none"> 1. Flipbook https://anyflip.com/yewzu/ynhp/ 2. Presentation in canva: https://www.canva.com/design/DAFSgbV-V2o/DRKmw2yGvIa_fhCQBkJogw/view?utm_content=DAFSgbV-V2o&utm_campaign=designshare&utm_medium=link&utm_source=publishsharelink 3. Template of the tour: https://anyflip.com/yewzu/eiry/



SÚKROMNÁ STREDNÁ ODBORNÁ ŠKOLA PRO SCHOLARIS
ADDRESS: Hlavná 2, 010 09 Žilina-Bytčica, VAT NUMBER: 36137430, SCHOOL CODE: 656112
e-mail: sekretariat@soaza.sk, web page: www.proscholaris.sk

 <p>PRO SCHOLARIS ŠKOLA</p>	<p>Súkromná stredná odborná škola Pro scholaris Žilina-Bytčica, Slovakia</p>	
--	---	---

	<p>4. Template for the itinerary in padlet: https://padlet.com/triperasmusplus/1i9tu9qehruq73wu</p>
<p>Monitoring learning</p>	<ul style="list-style-type: none"> • The teacher will see the students' interaction on the SUTORI story: https://www.sutori.com/en/story/itinerar--vfeZ8SAbyHbAmdfEPDTkxANP • Each student has to complete the activity when he or she is done studying the study materials. • The learners will: <ol style="list-style-type: none"> 1. Answer the Slido survey https://app.sli.do/event/66cpgK8mBTLa6HxUaBlU3 Thanks to the material that the students have to read and study, they will be able to answer the open question: <i>What is chronological preparation for?</i> They also have to evaluate the material prepared for them. 2. Create a work diary by a week https://tweek.so/share/34Jaj8SV8u8KVvUA7Bru When the students learn about the chronological preparation at home, they will scan the QR code in Sutori leading them to the calendar which should be completed. They have to complete it with the information for the week (the 21st of November 2022 till the 27th of November 2022) and plan the tour for their classmates. They can add info about the weather, birthdays, name-days, holidays, etc. Students are asked to insert a link to their work diary in this forum on Sutori portal. First they must sign in to TWEEK, fill in the information in their fictitious diary, and then share it by this forum.

Phase 2 (while)

<p>Engaging activity</p>	<p>The students will create a topographic and chronological preparation (places, km, timing, and programme) of 1-day trip in groups at school according to the routeing given by the teacher. They will use a table template available on the Padlet link/ QR code. https://padlet.com/triperasmusplus/1i9tu9qehruq73wuh They will work in groups to complete the itinerary according to the topic they have chosen from the 11th slide in the given Canva presentation.</p>
<p>Coaching students</p>	<p>Students will work in groups at school and the teacher will guide their work and help them if needed. During the lesson the teacher will check the itinerary if the students planed their trip according to the instructions in the flipbook. The feedback will be given by the teacher directly on Padlet via its tools of comments and evaluations.</p>
<p>Design assessment</p>	<p>During the presentation of students' itineraries the teacher will evaluate:</p> <ul style="list-style-type: none"> - Timing (20%) - Programme (20%) - Kilometers and routeing (20%) - Notes (relevant market prices, instructions) (20%)

 <p>PRO SCHOLARIS ŠKOLA</p>	<p>Súkromná stredná odborná škola Pro scholaris Žilina-Bytčica, Slovakia</p>	
--	---	---

	- Form of the itinerary (20%)
--	-------------------------------



Phase 3 (post)

Reflection	<p>The students' feedback will be given by the poll tool on https://www.sutori.com/en/story/itinerarvfeZ8SAbyHbAmdfEPDTkxANP</p> <p>The question is the following: <i>How would you rate your involvement in the lesson?</i></p> <ol style="list-style-type: none"> 1. Based on the materials I understood the topic and was able to confidently apply the knowledge to the assigned tasks. 2. After studying I was not sure about the subject but the tasks and working in a group helped me to apply the knowledge in practice. 3. I studied the materials but I still didn't understand the tasks. 4. I studied the materials thoroughly and did not understand what I was supposed to do in the tasks.
Further learning	<p>The students have to create a promotional material in the CANVA programme, which they will use to promote their one-day trip among SSOŠ Pro scholaris students. It can be a video or a poster. If it's a poster, they have to download it in PNG format. If it is a video, they will share it with the teacher via the link. Then they will upload the outputs to a comment under their itinerary in PADLET: https://padlet.com/triperasmusplus/1i9tu9qehruc73wu</p> <p>The students will evaluate their classmates. They will rate the best promotional material on https://www.sutori.com/en/story/itinerar-vfeZ8SAbyHbAmdfEPDTkxANP</p> <p>They can only vote for the material created by another group within the class (not to vote for their own work). The best group will be awarded by a grade/mark.</p>

Inclusion

There are 9 students in this class, none of them with special needs. However, there are 3 students who need help during the educational process. One of them studies according to the individual learning plan and studies via distance learning. Another student had problems with concentration and attention disturbances during his primary school studies. Although he does not require the pedagogical assistant anymore, we consider his special needs when planning the learning process.

The special support team plays a significant role in adapting the contents and the learning strategies to the needs and attitudes of the pupils, ensuring they can also work well alongside their classmates. The Sutori digital platforms help to lead distance learning process very effectively.

 <p>PRO SCHOLARIS ŠKOLA</p>	<p>Súkromná stredná odborná škola Pro scholaris Žilina-Bytčica, Slovakia</p>	
--	---	---



Facilitating e-Learning for an Inclusive Pedagogy
2021-1-SK01-KA220-VET-000034712



e-FLIP TEACHING ACTIVITY

Activity overview

This activity (implementing the model shared by our Turkish partners) is targeted at students of the 2nd year of the Business academy course (15 -16 years old pupils). The subject matter is Spanish language attended by 15 students.

Students are asked to study the vocabulary which was published on www.sutori.com but also on the intranet platform of our school www.nastuduj.sk until the next contact lesson. The materials in question were made interactively by adding Flashcards created by Quizlet directly in Sutori platform, and auto-evaluation poll. Time to read all of the documents is one week.





During the contact lesson students work in groups and the vocabulary is used during the EdPuzzle activity.

A task given to students is to create a video explaining the recipe of their favourite meal after the lesson. Several skills are measured and assessed to give them proper feedback. The activity ends with students' reflection and self-evaluation and with another activity which introduces the next lesson. Evaluation of the students will be done based on their homework by the teacher.

Phase 1 (pre)

Main objectives	To gain new knowledge of Spanish cooking, to compare Spanish and Slovak cuisine. To apply the imperative mood in practice.
Content	We use the flipbook with vocabulary related to UNID 5 and with the Slovak and Spanish food, flipbook with grammar.
Digitalization of content	The materials were posted to anyflip.com. Students have to read them and answer the tasks at home. <ol style="list-style-type: none"> 1. Flipbook of Imperative mode https://anyflip.com/yewzu/sadc/ 2. Flipbook of vocabulary https://anyflip.com/yewzu/kngy/ 3. Flipbook about Slovak and Spanish food https://anyflip.com/yewzu/jnjd/
Monitoring learning	The teacher sees the student's interaction in the SUTORY story: https://www.sutori.com/en/story/comida-espanola--USUhaPqZCjIhpArVEdktgRGz Each student has to complete the activity after reading the study materials.

SÚKROMNÁ STREDNÁ ODBORNÁ ŠKOLA PRO SCHOLARIS
ADDRESS: Hlavná 2, 010 09 Žilina-Bytčica, VAT NUMBER: 36137430, SCHOOL CODE: 656112
e-mail: sekretariat@soaza.sk, web page: www.proscholaris.sk

 <p>PRO SCHOLARIS ŠKOLA</p>	<p>Súkromná stredná odborná škola Pro scholaris Žilina-Bytčica, Slovakia</p>	
--	---	---



	<ul style="list-style-type: none"> • The learners will: <ol style="list-style-type: none"> 1. Answer the questions and learn the vocabulary using the Quizlet https://quizlet.com/_c4da9e?x=1jqt&i=3p2788 and with the help of the material that the students had to read and study from flipbooks, 2. Evaluate their progress by themselves using Sutori poll in the form of percentage.
--	---

Phase 2 (while)

Engaging activity	The students have to watch a video about the preparation of Gazpacho. They will answer questions directly in the video using EdPuzzle: https://edpuzzle.com/media/637b65547e92cc40df47c28a on SUTORI. They are asked to answer the quiz on Sutori as well and they will describe their own favourite food in comments on Sutori.
Coaching students	Students will work on the video task in groups at school and the teacher will guide their work and help them if needed. The feedback will be given by EdPuzzle directly. The teacher will also coach students using the tools of Sutori – comments, quizzes and Mentimeter https://www.menti.com/alosbx2jauhp . The standard is to obtain the same number of comments in SUTORI as the number of students in the group. They have to comment in the FORUM of the video activity, answering the question: What is your favourite food from Slovak cuisine? The students will have an opportunity to answer the matching quiz in SUTORI. https://www.sutori.com/en/story/comida-espanola--USUhaPqZCjJhpArVEdktgRGz
Design assessment	The students will send the scan of their result from the Quizlet to the school platform EduPage and they will obtain the grade for it. The Quizlet test is a part of the SUTORI presentation. The feedback will be given by the teacher directly in the EduPage platform via tools of comments and evaluation.

Phase 3 (post)

Reflection	<p>The students' feedback will be given by the poll tool on https://www.sutori.com/en/story/comida-espanola--USUhaPqZCjJhpArVEdktgRGz</p> <p>The question is the following: How many words from the topic do you remember?</p> <ol style="list-style-type: none"> 1. 100 – 85% 2. 84 – 70% 3. 69 – 50% 4. 49 – 33% 5. 32 – 0%
------------	--

 <p>PRO SCHOLARIS ŠKOLA</p>	<p>Súkromná stredná odborná škola Pro scholaris Žilina-Bytčica, Slovakia</p>	
--	---	---

<p>Further learning</p>	<p>The students write their own favourite recipe. They have to describe the needed ingredients, describe the process in imperative and justify why it is their favourite recipe. They will prepare the presentation in CANVA and upload the link in SLIDO.: https://app.sli.do/event/87Q5XDu7ForUVDEkbDRU9i/embed/polls/ea29686c-8405-4a48-a2e9-67d226497b61. The teacher will obtain the presentations from each student and it will also be evaluated.</p>
-------------------------	---

Inclusion

There are 15 students in this class, among which 3 students who have special needs. One of them is an autistic student with an individual learning programme and he studies by the form of distance learning from home. All of the materials are consulted with a special support team and by the special pedagogue. Another student has a problem with concentration and attention disturbances in addition to dyslexia and dysgraphia. A special support is also given to another student who used to be integrated during his primary school studies because of dyslexia and dysgraphia. Although she does not require the pedagogical assistant anymore, we consider her special needs when planning the learning process.

These pupils have the option of using a dictionary, various grammar tables, and when writing, the teacher acknowledges the correct and phonetic writing of the words used. A student can write homework on a computer. For all of these pupils, we follow and appreciate the efforts and progress made through the support provided in the form of an individual approach and consultation (we also monitor progress in areas that are not key). We are trying to give positive incentives and formulate negative criticism in such a way as to promote positive mental health. In solving tasks, we do not push for speed, as there is a tendency to increase the error rate.

Only one of the students has a pedagogical assistant but sometimes he is not accompanied by the assistant. The special support team plays a significant role in adapting the contents and the learning strategies to the needs and attitudes of the pupils, ensuring they can also work well alongside their classmates.

CHAPTER IX

Appraisal of the e-FLIP project

The active involvement of participating teachers in monitoring and providing feedback is pivotal for the successful development of the e-FLIP project. We value their expertise and insights, recognizing that their opinions are crucial in shaping the project's outcomes. By seeking and incorporating their valuable input, we aim to create an inclusive and effective initiative that meets the needs of both educators and students alike. Together, we tried to build a collaborative environment where everyone's voice was heard, leading to a project that truly makes a positive impact in the educational community.

Below is a sample of the invaluable feedback and opinions shared by our participating teachers.

1 The e-FLIP Model

'The use of e-FLIP gives planning the learning process a structure - it also creates a structure for students in their own learning. Therefore students are involved and productive. The e-FLIP model also provides opportunities for detailed evaluation by the teacher.'

Slovak teacher, Final Assessment, Slovakia, July 2023

'It defines a clear path for developing flipped classroom activities.'

Italian teacher, Final Assessment, Italy, July 2023

'It offers a clear, structured planning template to develop our tasks. It is an excellent tool to implement the e-FLIP approach in class, enhancing students' learning and skills. I especially like the possibility to conduct a systematic, in-depth evaluation and the feedback with students.'

Spanish teacher, Final Assessment, Spain, July 2023

'The flipped classroom is nowadays well known and many teachers already implement it, but in different ways and with a plethora of tools that may raise privacy concerns. Having a proven model available allows teachers to focus their efforts on content and results. Furthermore, it becomes easier to provide training and guidance.'

Italian teacher, Final Assessment, Italy, July 2023

‘The e-FLIP Model was useful just thanks to its adaptability to most of the topics I teach. The best benefit is that the Model enhances learners’ productivity and gives a different point of view to given topics, not only from the side of a teacher but also from the side of a student.’

Slovak Teacher, Final Assessment, Slovakia, July 2023

‘e-FLIP Model allows students to prepare better for the practical part of the lesson. It is beneficial because students are in control of the theoretical part of their learning process.’

Slovak Teacher, Final Assessment, Slovakia, July 2023

‘Getting involved, reviewing with ease. Promoting lifelong learning. Teaching with the e-FLIP Model makes it possible to offer students more engaging content in preparation for teaching activities, monitor results, and get ideas for subsequent activities. This allows students to perceive learning as a continuous cycle and to develop lifelong learning skills.’

Italian teacher, Final Assessment, Italy, July 2023

‘Our students need to strengthen their digital skills to access the work market successfully. Especially in VET training, where practical learning is essential, it gives them the chance to deal with the theoretical part at home and focus on hands-on learning in class.’

Spanish teacher, Final Assessment, Spain, July 2023

‘The Model gives a different perspective on how to learn/teach VET subjects as well as general subjects.’

Slovak Teacher, Final Assessment, Slovakia, July 2023

‘Especially, in the pre and post-stages, being collaborative and interactive among students, could be useful. Through using these tools we can make our lessons more effective and in the classroom, we may spare more time to practise and carry out tasks with students.’

Turkish teacher, LTT Survey, Iceland, 2022

‘Having a clear procedure to follow, to put into practice, and to customize according to your class needs.’

Italian teacher, LTT Survey, Iceland, 2022

‘The infographic was really an excellent way to summarize what has to be done in order to create a proper e-FLIP lesson plan. The steps were clear and informative. It helped me to fully understand what a teacher was expected to do in order to take the most advantage of the model.’

Spanish teacher, LTT Survey, Iceland, 2022

‘Well-structured preparation for the lessons and student involvement and cooperation. Great way to have interactive, communicative, and collaborative flipped classes on the internet. Some of the major issues in traditional and flipped learning are addressed in this model.’

Turkish teacher, LTT Survey, Iceland, 2022

2 The e-FLIP Platform

‘Building a digital platform for learning to help students achieve success. The e-FLIP model offers a selection of digital tools and a well-defined work strategy. Starting from this, it is possible to develop a shared platform in the school to create increasingly effective content and assist teachers in their daily work of developing lessons.’

Italian teacher, Final Assessment, Italy, July 2023

‘The choice of Web 2.0 tools is really useful because navigating the wide offer available is often time-consuming and disappointing for teachers who do not have the time or skills for that. The tools in the platform are already selected, tested, and reliable. And the video tutorials are a great help for the users! The platform is a great chance for schools that want to update the digitalization of their curricula.’

Spanish teacher, Final Assessment, Spain, July 2023

‘Besides, teachers all over the world have realized in the past years that the traditional methodological approach is no longer useful for today’s students because it provides inadequate preparation for the future and it doesn’t meet the students’ needs. The training on e-FLIP Model offers a chance to apply an innovative and inclusive approach, provides significant learning, fosters critical thinking, and where every student finds his/her own pace.’

Spanish teacher, Final Assessment, Spain, July 2023

‘The tools were really relevant to teachers. And the e-FLIP training module was promising in the dissemination of the project to other teachers online.’

Turkish teacher, LTT Survey, Cuneo, 2022

‘The e-FLIP Digital Platform can be used in a variety of VET subjects as much as a teacher training programme and as an application of the e-FLIP Model in the practice of everyday educational process. Furthermore, it provides direct feedback and monitoring of the students’ activity.’

Slovak Teacher, Final Assessment, Slovakia, July 2023

‘The platform can be useful for teacher training, project dissemination, and multiplier events. the teacher can prepare the activities in the normal lesson of the education process following the module/platform. Unfortunately, he/she cannot prepare his/her own courses and add more presentations which is the main goal of the project. I really like the e-FLIP model of teaching because the teacher is just the facilitator, not the leader of the lesson. ‘

Slovak teacher, LTT Survey, Iceland, 2022

‘I had the opportunity to know and try different useful learning/teaching tools that I didn’t use before. For example, I usually use Kahoot for quizzes but now I’m preparing quizzes for my students also on Socrative because I really appreciate the possibility to add an explanation to the answer. I probably will use many tools shown in the training to prepare dynamic lessons, but also to improve the skill of “learning to learn” in my students.’

Italian teacher, LTT Survey, Iceland, 2022

3 Web 2.0. Tools

‘Using digital tools in the classroom shows that the education system is progressing. Students get engaged more, and the materials are easily adapted to the specific needs of students. We must not forget that digital materials are accessible at all times - instead of dragging around books, students access whatever they need with a couple of clicks on their phones, tablets, or laptops.’

Slovak Teacher, Final Assessment, Slovakia, July 2023

‘The approach also gives us a chance to provide tailor-made learning. Each student follows his/her own learning path. For example, if a student is struggling with a topic, he/she can access the digital content as many times as needed, communicate with the teacher to clear doubts when working at home, and additional resources can be offered to help them backfill their knowledge.’

Spanish teacher, Final Assessment, Spain, July 2023

‘Overcoming barriers to learning and navigating knowledge. Digital learning resources can be used in different ways and adapted according to the learning styles of each student. In particular, students with disabilities or special educational needs can use immersive reading tools or interact with what they have studied, developing greater confidence. Furthermore, the digital material can be easily remixed and reused in different classrooms building a knowledge base for different subject departments.’

Italian teacher, Final Assessment, Italy, July 2023

‘Digitalization of content gains special relevance because it provides learning aid for different learning styles. Presentations, infographics, charts, and videos are excellent help for visual learners who need to ‘see’ the content. Auditory learners who comprehend and remember information through listening can make good use of videos, podcasts, and conferences. And Kinaesthetic Learners benefit from games and interactive activities which offer a break from theoretical class.’

Spanish teacher, Final Assessment, Spain, July 2023

‘Students proceed faster, and lessons are more attractive from the learners’ perspective.’

Slovak Teacher, Final Assessment, Slovakia, July 2023

‘I have heard about some of these tools for the first time and I think I will benefit much in my further teaching. At different stages of the lesson, including planning and assignment activities, I can use these tools.’

Italian teacher, LTT Survey, Iceland, 2022

‘It was useful to discover new online services and compare them with the existing infrastructure adopted in our school, detecting good points and weaknesses. All of them were really useful tools for teaching. I especially liked those that help organize the students’ tasks.’

Slovak teacher, LTT Survey, Iceland, 2022

‘I could have an overall on different tools that I didn’t know; I learned new educative tools that can be very useful for my subject and for the projects that I run in my school involving students; it helped me reflect on how to use some educative tools in an inclusive way, and reflecting about which tool is the most effective in relation to different educative situations.’

Italian teacher, LTT Survey, Iceland, 2022

REFERENCES

- Aditya, D. (2021). Embarking digital learning due to COVID-19: Are teachers ready? *Journal of Technology and Science Education*, 11(1), 104-116.
- 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>.
- Alam, A. (2020). Challenges and possibilities of online education during Covid-19. Retrieved from <https://doi.org/10.20944/preprints202006.0013.v1>.
- Aldhafeeri, F., Palaiologou, I., & Folorunsho, A. (2016). Integration of Digital Technologies into play-based pedagogy in Kuwaiti early childhood education: teachers' views, attitudes and aptitudes. *International Journal of Early Years Education*, 24(3), 342360.
- Allen, M. (2013). What was Web 2.0? Versions as the dominant mode of internet history. *New Media & Society*, 15(2), 260-275.
- Asad, M. M., Aftab, K., Sherwani, F., Churi, P., Moreno-Guerrero, A., Pourshahian, B. (2021). "Techno-pedagogical skills for 21st century digital classrooms: An extensive literature review", *Education Research International*.
- Ağırman, N. & Ercoşkun, M.H. (2022). History of the flipped classroom model and_uses of the flipped classroom concept. *International Journal of Curriculum and Instructional Studies* 12(1), 71-88. <https://doi.org/10.31704/ijocis.2022.004>.
- Badgers, H. (2021). WEB 1.0'dan WEB 4.0'a İnternetin Evrimi. Retrieved from <https://nttdata-solutions.com/tr/blog/web-bir-sifirdan-web-dort-sifira-internetin-evrimi/>.
- Barak, M. (2006). Instructional principles for fostering learning with ICT: Teachers' perspectives as learners and instructors. *Education and Information Technologies*,11, 121-135.
- Barbour, M. (2012). Training Teachers for a Virtual School System: a Call to Action. Retrieved from https://digitalcommons.sacredheart.edu/ced_fac/102/.
- Bergmann, J. & Sams, A. (2012). *Flip Your Classroom: Reach Every Student in Every Class Every Day*. International Society for Technology in Education.

- Bernal, P. (2018). Regulating social media companies. *Internet Policy Review*, 7(4).
- Bonk, C. J. & Graham, C. R. (2012). *The Handbook of Blended Learning: Global Perspectives, Local Designs*. John Wiley & Sons.
- Brown, R. (2009). *Public relations and the social Web: How to use social media and Web 2.0 in communications*. NY: Kogan Page Publishers
- Canbazoglu Bilici, S., Guzey, S. S., & Yamak, H. (2016). Assessing pre-service science teachers' technological pedagogical content knowledge (TPACK) through observations and lesson plans. *Research in Science & Technological Education*, 34(2), 237-251.
- Chen, Y., Wang, Y., & Chen, N. S. (2014). Is FLIP enough? Or should we use the FLIPPED model instead? *Computers & Education*, 79, 16-27.
- Cirit, N. C. (2015). Assessing ELT Pre-Service Teachers via Web 2.0 Tools: Perceptions toward Traditional, Online and Alternative Assessment. *Turkish Online Journal of Educational Technology-TOJET*, 14(3), 9-19.
- Crompton, H., & Sutherland, R. (2017). Digital literacies in the making: Schools producing news with BBC News School Report. *Learning, Media and Technology*, 42(3), 337-353.
- Darwish, A., & Lakhtaria, K. I. (2011). The impact of the new Web 2.0 technologies in communication, development, and revolutions of societies. *Journal of advances in information technology*, 2(4), 204-216.
- Dixson, M. D. (2010). Creating effective student engagement in online courses: What do students find engaging? *Journal of the Scholarship of Teaching and Learning*, 10(2), 1-13.
- Ertmer, P. A., & Ottenbreit-Leftwich, A. T. (2010). Teacher technology change: How knowledge, confidence, beliefs, and culture intersect. *Journal of Research on Technology in Education*, 42(3), 255-284. <https://doi.org/10.1080/15391523.2010.10782551>.
- European Commission, (2021). *Erasmus Plus Programme Guide*. Retrieved from <https://erasmus-plus.ec.europa.eu/erasmus-programme-guide>.
- European Commission. (2017). *The European Framework for the Digital Competence of Educators (DigCompEdu)*. Retrieved from <https://ec.europa.eu/jrc/en/digcompedu>.

- European Commission. (2018). General Data Protection Regulation (GDPR). Retrieved from https://ec.europa.eu/info/law/law-topic/data-protection_en.
- European Commission. (2020). Resetting Education and Training for the Digital Age. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions.
- European Data Protection Board. (2020). Guidelines 07/2020 on the concepts of controller and processor in the GDPR. Retrieved from https://edpb.europa.eu/system/files/2021-07/eppb_guidelines_202007_controllerprocessor_final_en.pdf.
- European Union Agency for Cybersecurity (ENISA). (2019). GDPR and NIS Directive: A Quick Guide to the Security Measures for Personal Data.
- Fernandez-Batanero, J., Roman-Gravan, P., Montenegro-Rueda, M., Lopez-Meneses, E., & Fernandez-Cerero, J. (2021). Digital teaching competencies in higher education: a systematic review. *Education Sciences*. Retrieved from <https://www.mdpi.com/2227-7102/11/11/689>.
- Ferrari, A. (2012). Digital competence in practice: An analysis of frameworks. *European Journal of Education*, 47(1), 28-45.
- Floridi, L., & Taddeo, M. (2016). What is data ethics? *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, 374(2083), 20160360.
- Frailon, J., Ainley, J., Schulz, W., Friedman, T., & Gebhardt, E. (2019). Preparing for life in a digital world: IEA International Computer and Information Literacy Study 2018 International Report. Springer.
- Fulton, K.P. (2013) Grassroots Gains Byron's Flipped Classrooms. *School Administrator*, 70(3), 26-28, 30-32.
- García-Valcárcel, A., & Mena, J. (2016). Information technology as a way to support collaborative learning: What in-service teachers think, know and do. *Journal of Information Technology Research (JITR)*, 9(1), 1-17.
- Garrison, D. R. & Vaughan, N. D. (2007). *Blended Learning in Higher Education: Framework, Principles, and Guidelines*. Jose Bass a Wiley Imprint.

- Gebremedhin, M. A., & Fenta, A. A. (2015). Assessing Teachers' Perception on Integrating ICT in Teaching-Learning Process: The Case of Adwa College. *Journal of Education and Practice*, 6(4), 114-124.
- Ghavifekr, S., Kunjappan, T., Ramasamy, L., & Anthony, A. (2016). Teaching and Learning with ICT Tools: Issues and Challenges from Teachers' Perceptions. *Malaysian Online Journal of Educational Technology*, 4(2), 38-57.
- Gikandi, J. W., Morrow, D., & Davis, N. E. (2011). Online formative assessment in higher education: a review of the literature. *Computers & Education*, 57(4), 2333-2351.
- Hardman, J. (2019). Towards a pedagogical model of teaching with ICTs for mathematics attainment in primary school: a review of studies 2008–2018. *Heliyon*, 5(5), e01726. Retrieved from <https://www.sciencedirect.com/science/article/pii/S2405844019334620>.
- Herro, D. (2014). Techno Savvy: a Web 2.0 curriculum encouraging critical thinking. *Educational Media International*, 51(4), 259-277.
- Hinojo-Lucena, F. J., Aznar-Diaz, I., Caceres-Reche, M. P., Trujillo-Torres, J. M., & Romero Rodriguez, J. M. (2019). Factors influencing the development of digital competence in teachers: Analysis of the teaching staff of permanent education centers. *IEEE Access*, 7, 178744-178752.
- Horton, W. (2012). *E-Learning by Design* (2nd Ed). Pfeiffer.
- Instefjord, E. (2015). Appropriation of digital competence in teacher education. *Nordic Journal of Digital Literacy*, 10, 155-171.
- International Society for Technology in Education (ISTE). (2018). ISTE Standards. Retrieved from <https://www.iste.org/es/iste-standards>.
- Jobin, A., Ienca, M., & Vayena, E. (2019). The global landscape of AI ethics guidelines. *Nature Machine Intelligence*, 1(9), 389-399.
- Johnson, A. M., Jacovina, M. E., Russell, D. G., & Soto, C. M. (2016). Challenges and solutions when using technologies in the classroom. In *Adaptive Educational Technologies for literacy instruction* (pp. 13-30). Routledge.
- Johnson, G. (2013) Flipped classrooms not beneficial to all. *University Wire*, Nov 2013, 1 (1).

- Kaplan, A. M., & Haenlein, M. (2010). Users of the World, Unite! The Challenges and Opportunities of Social Media. *Business Horizons*, 53(1), 59-68.
- Karl, L. Z. (2003). Computer-assisted learning and teaching. *Encyclopedia of Computer Science*. John Wiley and Sons Ltd., GBR, 328–336.
- Kebritchi, M., Lipschuetz, A., & Santiago, L. (2017). Issues and Challenges for teaching successful online courses in higher education: a literature review. *Journal of Educational Technology Systems*, 46(1), 4-29.
- Knezek, G., Christensen, R., & Ropp, M. (2013). A survey of practices on the use of technology in primary schools around the world. *Technology, Pedagogy and Education*, 22(3), 319-336.
- Korucu, A. T., & Karalar, H. (2017). Sınıf Eğitimi Öğretim Elemanlarının Web 2.0 Araçlarına Yönelik Görüşleri Basic Education Instructors' Views On Web 2.0 Tools.
- Lai, C., & Hwang, G. (2016). a self-regulated flipped classroom approach to improving students' learning performance in a mathematics course, *Computers & Education*, 100, 126-140, <https://doi.org/10.1016/j.compedu.2016.05.006>.
- Leaver, T., & Kent, M. (2012). An Introduction to Social Media. In *An Introduction to Social Media Marketing* (pp. 1-14). SAGE Publications.
- Li, N., Verma, H., Skevi, A., Zufferey, G., Blom, J., & Dillenbourg, P. (2014). Watching MOOCs together: investigating co-located MOOC study groups. *Distance Education*, 35(2), 217-233.
- Livingstone, S., Ólafsson, K., & Staksrud, E. (2013). Risky social networking practices among “underage” users: Lessons for evidence-based policy. *Journal of Computer-Mediated Communication*, 18(3), 303-320.
- Logan, B. (2015). Deep exploration of the flipped classroom before implementing. *Journal of Instructional Pedagogies*, 16, 1-12.
- Lyonga, N. A. N., Moluayonge, G. E., & Nkeng, A. J. (2021). a study of techno-pedagogical skills and teachers' performance in HTTTC kumba, Cameroon. *European Journal of Education and Pedagogy*, 2(1), 46-50.
- Martyn, M. (2003). The Hybrid Online Model: Good Practice. *Educause Quarterly*, 26(1), 18-23.
- Mittelstadt, B. D., Allo, P., Taddeo, M., Wachter, S., & Floridi, L. (2016). The ethics

- of algorithms: Mapping the debate. *Big Data & Society*, 3(2),.
- Ni, S. F., & Aust, R. (2008). Examining teacher verbal immediacy and sense of classroom community in online classes. *International Journal on E-learning*, 7(3), 477-498.
- Niess, M. L. (2005). Preparing teachers to teach science and mathematics with technology: Developing a technology pedagogical content knowledge. *Teaching and Teacher Education*, 21(5), 509–523. DOI: 10.1016/j.tate.2005.03.006.
- Petchamé, J., Iriondo, I., Villegas, E., Riu, D., & Fonseca, D. (2021). Comparing face-to-face, emergency remote teaching and smart classroom: a qualitative exploratory research based on students' experience during the COVID-19 pandemic. *Sustainability*, 13(12), 6625.
- Rathore, S., & Suhonen, J. (2018). Privacy and security in big data: A systematic literature review. *Journal of Big Data*, 5(1), 1-24.
- Rebora, A. (2017). Getting personalization right: Perspectives/personal matters. *Educational Leadership*, 74(6), 7. Retrieved from <https://www.ascd.org/el/articles/personal-matters>.
- Redecker, C., & Punie, Y. (2017). European framework for the digital competence of educators: DigCompEdu. EUR 28548 EN. Publications Office of the European Union.
- Roach, T. (2014). Student perceptions toward flipped learning: New methods to increase interaction and active learning in economics. *International Review of Economics Education*, 17, 74-84.
- Rosalina, E., Nasrullah, N., & Elyani, E. P. (2020). Teacher's challenges towards online learning in pandemic era. *LET: Linguistics, Literature and English Teaching Journal*, 10(2), 71-88.
- Rowston, K., Bower, M., & Woodcock, S. (2020). The lived experiences of career-change pre-service teachers and the promise of meaningful technology pedagogy beliefs and practice. *Education and Information Technologies*, 25(2), 681-705.
- Rutkowski, D., Rutkowski, L., Bélanger, J., Knoll, S., Weatherby, K., & Prusinski, E. (2013). Teaching and Learning International Survey TALIS 2013: Conceptual Framework. OECD Publishing.

- Saubern, R., Urbach, D., Koehler, M., & Phillips, M. (2020). Describing increasing proficiency in teachers' knowledge of the effective use of digital technology. *Computers & Education*, 147, 103784.
- Shelly, G. B., & Frydenberg, M. (2010). *Web 2.0: Concepts and applications*.
- Solomon, G., & Schrum, L. (2014). *Web 2.0 how-to for educators*. International Society for Technology in Education.
- Sorell, T., & Wallis, S. (2018). Disabling environments: Do we need ethical theory to deal with emerging technologies? In T. S. Christensen & N. B. Jørgensen (Eds.), *Doing good with technologies: Taking responsibility for the social role of emerging technologies* (pp. 117-138). Routledge.
- Strayer, J. F. (2012). How learning in an inverted classroom influences cooperation, innovation, and task orientation. *Learning Environments Research*, 15(2), 171-193.
- Sugar, W., & Brown, A. (2008). Antecedents of computer-based instruction and its current relationship to our discipline: An examination of the last fifty years of DAVI/AECT convention presentations. *TechTrends*, 52(2), 59-69. Retrieved from <https://www.proquest.com/scholarly-journals/antecedents-computer-based-instruction-current/docview/223120904/se-2>.
- Swartzwelder, K., Murphy, J., & Murphy, G. (2019). The impact of text-based and video discussions on student engagement and interactivity in an online course. *Journal of Educators Online*, 16(1). Retrieved from <https://eric.ed.gov/?id=EJ1204391>.
- Talbert, R. (2019). Re-thinking Bloom's Taxonomy for flipped learning design. Retrieved from: <https://rtalbert.org/re-thinking-blooms-taxonomy-for-flipped-learning-design/>.
- Taylor, A. (2015). Flipping great or flipping useless? a review of the flipped classroom experiment at Coventry University London Campus. *Journal of Pedagogic Development*, 5, (3), 57-65.
- Tene, O., & Polonetsky, J. (2012). Big data for all: Privacy and user control in the age of analytics. *Northwestern Journal of Technology and Intellectual Property*, 11, 239.

- Tran, T. M., & Stoilescu, D. (2016). An Analysis of the Content, Policies and Assessment of ICT Curricula in the Final Years of Secondary Schooling in Australia and Vietnam: a Comparative Educational Study. *Journal of Information Technology Education*, 15, 49-72.
- U.S. Department of Education. (2020). Student Privacy 101: FERPA for parents and students. Retrieved from https://studentprivacy.ed.gov/sites/default/files/resource_document/file/FERPA_101_for_Parents%20and%20Students.pdf.
- UNESCO. (2020). Privacy and freedom of expression in the digital age: Guidelines for legislators. Retrieved from https://en.unesco.org/sites/default/files/privacy_guidelines_legislators.pdf.
- Wachter-Boettcher, S. (2017). Technically wrong: Sexist apps, biased algorithms, and other threats of toxic tech. W. W. Norton & Company.
- Williams, N. V., & Casale, M. J. (2015). The Preparation of Teacher Candidates for K-12 Online Learning Environments: a Case Study. *Mid-Western Educational Researcher*, 27(2),142-151.
- Wright, J. M. (2014). Planning to meet the expanding volume of online learners: An examination of faculty motivation to teach online. *Educational Planning*, 21(4), 35-49.
- Wu, B., Hu, Y., Gu, X., & Lim, C.P. (2016). Professional Development of New Higher Education Teachers With Information and Communication Technology in Shanghai. *Journal of Educational Computing Research*, 54, 531 - 562.
- Özden, A. T. (2022). 1.0'dan 5.0'a Dünya: Web, Pazarlama, Endüstri ve Toplum. *Journal of Business in The Digital Age*, 5(1), 29-44.

e-ISBN 978-625-6810-29-7