Digital competences in foreign language didactics:

How to conduct foreign language lessons in an attractive online format so that…

- *It is fun for the learners*

- *Does not cause fatigue and boredom*

- *It enables the realization of didactic objectives*

→ Use of instructional videos / flipped classroom approach

University for Continuing Education Krems.

Development and evaluation of instructional videos for the EFL classroom

Marlene Wagner & Detlef Urhahne

Instructional videos

★ Differ from videos that are watched for entertainment

★ Objective: „to help someone learn about specific concepts or procedures" (De Koning et al., 2018, p. 395)

★ frequently integrated in traditional classroom settings

★ play a crucial role in blended learning formats such as flipped classrooms (DeLozier & Rhodes, 2016)
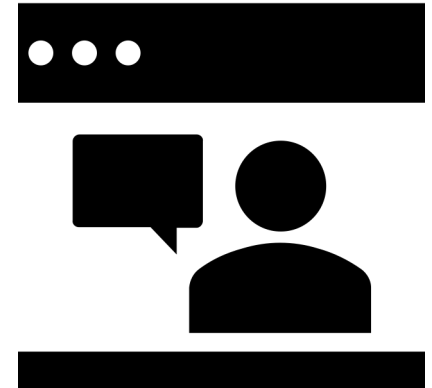
Flipped classroom instruction (FCI)

★Entails a change in learning activities of both space and time (e.g., Lage et al., 2000)

★Classroom and at-home activities?

★Particular medium?

More specific and typical definition:

Flipped classroom = instructional approach in which students…

★ study instructional videos at home

★ homework assignments are done in class and in groups

(Bishop & Verleger, 2013; DeLozier & Rhodes, 2016; Lo & Hew, 2017)

Video-based learning

★ Visual + verbal information: multimedia learning environment

★ Extensive amount of research in multimedia learning in the last 30 years

★ Cognitive psychology theories provide a theoretical framework to describe and understand how learning with multimedia works

- Mayer's Cognitive Theory of Multimedia Learning (Mayer, 2014)

- Sweller's Cognitive Load Theory (Sweller, 2011)

→ principles for the design of multimedia learning environments were developed
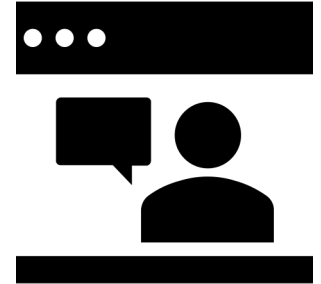
Design principles for computer-based multimedia instruction

Principle	Description
Multimedia	People learn better from a combination of words and pictures rather than words alone.
Coherence	People learn better when extraneous material is excluded.
Signalling	People learn better when essential material is highlighted.
Segmenting	People learn better when a multimedia lesson is presented in small user-paced segments.
Pre-training	People learn better when they learn the key terms prior to receiving a multimedia lesson.
Voice	People learn better from a human voice than a machine-like voice.

Instructional video use: at home vs. in class

At home	In class
Presentation of the video is interactive and learner-paced	Presentation of the video is non-interactive and system-paced
Self-pacing should help learners to… • better manage or even reduce cognitive load • improve learning	If information is very complex and presented too fast → cognitive overload, poorer learning outcomes

(Merkt et al., 2011; Schwan & Riempp, 2004; Abeysekera & Dawson, 2015)

Research questions

Research question 1

- How do students evaluate the use of instructional videos in EFL classes in terms of their **usability**, their **impact on engagement** and their **impact on learning** (subjective learning achievement)?

(Research question 2):

- Are there any differences in the evaluation between the four study conditions?

Research question 3:

- Which relationship is shown between the **impact on engagement** and **students' objective grammar achievement**?

Research question 4:

- Which relationship is shown between **students' subjective learning achievement** and their **objective grammar achievement**?

Methodology

Sample:

848 ninth-grade students (*Realschule*) from Bavaria

Materials:

★ Six instructional videos on different English grammar topics (~ 6 min): design principles were considered

★ Six worksheets with several exercises

★ Evaluation of instructional video use: adapted version of the CriSP questionnaire (Richardson et al., 2017)

★ Grammar achievement: adapted version of the DESI grammar test (Nold & Rossa, 2007)

Results: RQ1

	In total (N = 848)		Video at home & student-centred (n = 215)		Video at home & teacher-centred (n = 201)		Video in class & student-centred (n = 169)		Video in class & teacher-centred (n = 263)	
	M	SD	M	SD	M	SD	M	SD	M	SD
Usability	3.66	.78	3.84	.71	3.58	.93	3.58	.69	3.63	.74
Engagement	2.46	.83	2.53	.74	2.22	.80	2.61	.82	2.51	.89
Learning	2.76	.91	2.82	.83	2.49	.88	2.96	.84	2.79	1.00

→ Evaluations were average to rather positive
→ Results for usability subscale were higher

Results: RQ3 + RQ4

Variable	M	SD	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Usability	3.66	.78	.34**	.41**	.07	.07*	.12**	-.00	.13**
(2) Engagement	2.46	.83		.82**	- .11**	.11**	-0.07	.04	.08*
(3) Learning	2.76	.91			-.11**	.12**	-.05	.02	.14**
(4) Video	.49	.50				.13**	.08*	-.00	-.06
(5) Method	.45	.50					- .11**	-.02	.06
(6) Gender	.52	.50						-.07	.08*
(7) Age	14.95	.70							-.04
(8) Learning gains	2.04	5.22							

Discussion

★ Students rated the video use in terms of usability and the effects on engagement and subjective learning achievement as average to trending positive.

★ In particular, usability was rated as positive in both the "video at home" and "video in class" conditions.

★ Accordingly, students found it easy to use the videos and there were no technical problems.

→ Thus, it could be shown that the use of instructional videos is also perceived positively by students in secondary school.

→ It could also be shown that positive evaluations of instructional videos tend to be associated with higher learning achievement.

Thank you for your attention!

Wagner, M., & Urhahne, D. (2021). Entwicklung und Evaluation von Lernvideos für den Englischunterricht. In *bwp@ Spezial AT-3: Beiträge zum 14. Österreichischen Wirtschaftspädagogik-Kongress*, 1 – 18. [https://www.bwpat.de/ausgabe/wipaed-at3/wagner-urhahne]

Dr.-Karl-Dorrek-Straße 30
3500 Krems, Österreich

Phone.: +43 (0)2732 893-0
Fax: +43 (0)2732 893-0

www.donau-uni.ac.at
info@donau-uni.ac.at

University for Contiuning Education Krems.

DONAU UNIVERSITÄT KREMS

References

Bishop, J. L., & Verleger, M. A. (2013). The flipped classroom: A survey of the research. In *120th ASEE national conference and exposition*. Atlanta, GA: American Society for Engineering Education (paper ID 6219).

De Koning, B. B., Hoogerheide, V., & Boucheix, J.-M. (2018). Developments and trends in learning with instructional video. *Computers in Human Behavior, 89*, 395–398. https://doi.org/10.1016/j.chb.2018.08.055

DeLozier, S., & Rhodes, M. (2016). Flipped classrooms: A review of key ideas and recommendations for practice. *Educational Psychology Review, 29*(1), 141–151. https://doi.org/10.1007/s10648-015-9356-9

Lage, M. J., Platt, G. J., & Treglia, M. (2000). Inverting the classroom: A gateway to creating an inclusive learning environment. *The Journal of Economic Education, 3* (1), 30 – 43. https://doi.org/10.2307/1183338

Lo, C., & Hew, K. (2017). A critical review of flipped classroom challenges in K-12 education: Possible solutions and recommendations for future research. *Research and Practice in Technology Enhanced Learning, 12*(4), 1–22. https://doi.org/10.1186/s41039-016-0044-2

Mayer, R. E. (2014). *The Cambridge handbook of multimedia learning* (2. ed.). New York.

Mayer, R. E. (2017). Using multimedia for e-learning. *Journal of Computer Assisted Learning*, 33(5), 403-423. https://doi.org/10.1111/jcal.12197

Merkt, M., Weigand, S., Heier, A., & Schwan, S. (2011). Learning with videos vs. learning with print: The role of interactive features. *Learning and Instruction, 21*(6), 687–704.

Nold, G., & Rossa, H. (2007). Sprachbewusstheit [language consciousness]. In B. Beck, & E. Klieme (Eds.), *Sprachliche kompetenzen. Konzepte und messung. DESI-studie (deutsch englisch schülerleistung international)* (pp. 226–244). Beltz.

Richardson, A., Dunn, P., McDonald, C., & Oprescu, F. (2014). CRiSP: An instrument for assessing student perceptions of classroom response systems. *Journal of Science Education and Technology, 24*(4), 432–447. https://doi.org/10.1007/s10956-014- 9528-2

Sweller, J. (2011). Cognitive load theory. *Psychology of Learning and Motivation, 55*, 37–76. https://doi.org/10.1016/B978-0-12-387691-1.00002-8

University for Continuing Education Krems.