



TEACHER STUDENTS' PERCEPTIONS OF THE ADVANTAGES AND DISADVANTAGES OF ONLINE AND FACE-TO-FACE LEARNING AS A BASIS FOR DESIGNING HYBRID LEARNING

**Magdalena Zavodna¹, Tatiana Havlaskova², Tomas Javorcik³,
& Katerina Kostolanyova⁴**

University of Ostrava, Faculty of Education
Frani Sramka 3, 709 00 Ostrava, Czech Republic

¹ Magdalena.Zavodna@osu.cz, <https://orcid.org/0009-0002-8510-4089>

² Tatiana.Havlaskova@osu.cz, <https://orcid.org/0000-0001-6721-6517>

³ Tomas.Javorcik@osu.cz, <https://orcid.org/0000-0003-2050-8648>

⁴ Katerina.Kostolanyova@osu.cz, <https://orcid.org/0000-0003-3679-2233>

Abstract: *By 2020, only a small percentage of learners experienced online learning. During the Covid-19 period, all learners and teachers, at all levels experimented with online learning. In our research, we decided to focus on the area of hybrid learning, which has been somewhat neglected so far. We believe that good quality hybrid learning should take advantage of the benefits of both online and face-to-face learning, so we decided to conduct research specifically on the advantages and disadvantages of online and face-to-face learning, from the perspective of a new generation of educators who have experienced online learning from the perspective of students but may also be thinking about it as future teachers. The research was carried out at the Faculty of Education of the University of Ostrava using a questionnaire survey. In this article we want to present the results of the research (e.g. the need for social contact, commuting problems during face-to-face learning, and the flexibility of online learning), and possible innovations that online learning has brought to face-to-face learning and that can be used in the creation of hybrid learning (e.g. recording lectures, completing assignments online, working in shared storage, or connect to learning from home via online video call).*

Keywords: online learning; face-to-face learning; hybrid learning; pandemic of Covid-19; advantages and disadvantages; digital technologies

INTRODUCTION

Much research has already focused on the comparison between online and face-to-face learning. However, we decided to take this area further and use the research results to create a basis for creating good hybrid learning. This is where the originality of our research lies, as we are focusing on the area of hybrid learning because of its topicality triggered by the Covid-19 pandemic, but also because it has been a relatively neglected topic so far. We are addressing hybrid learning as part of a larger research project, the first part of which will be presented in this paper.

For this part of the research, we set four basic research questions:

1. *What do student teachers consider to be the advantages of online learning?*
2. *What do student teachers consider to be the disadvantages of online learning?*
3. *What do student teachers consider to be the advantages of face-to-face learning?*
4. *What do student teachers consider to be the disadvantages of face-to-face learning?*

These are descriptive research questions, hence we could not establish any hypotheses.

1. FORMS OF LEARNING

In today's modern learning environment, we encounter various forms of learning, the two most well-known of which are face-to-face and online. In recent years, however, hybrid learning has also become an increasingly well-known concept. We can also encounter the terms blended learning, distance learning, e-learning or m-learning. There is no need to introduce face-to-face learning at length. It is a traditional way of teaching where all the students and the teacher are present in the classroom, or laboratory or gym. However, even this form of learning is now increasingly permeated by the use of digital technologies, learning apps and other digital learning resources thanks to active teachers (Budiman et al., 2018).

Online learning, on the other hand, takes place only in an online virtual space using digital technologies and various digital learning resources. It is a synchronous form of learning, where all participants, i.e. students and teacher, are present in a virtual classroom in real time, where they work in a similar way as in a face-to-face classroom. At the time of the Covid-19 pandemic, online learning was also associated with the term distance learning. However, here it is important to distinguish distance learning into synchronous and asynchronous learning, as asynchronous learning takes place in the form of e-learning, i.e. without a live connection with other participants (Gherhes et al., 2021, King et al., 2022, Anderson et al., 2020). The term m-learning can then be encountered when the learning takes place using mobile devices (Klimova, 2015).

Each of these forms of learning has its advantages and disadvantages. Some students may be better able to concentrate in a traditional classroom environment, while others will appreciate the flexibility and convenience of online learning. But hybrid learning may be the ideal solution for those who want to combine face-to-face

interaction with online learning from the comfort of home. As research by Rath et al. (2019) confirms, it is always crucial that online, or hybrid, learning is properly organized and takes advantage of all the benefits available to it.

1.1. Comparison of online and face-to-face learning

Since the beginning of the 21st century, many studies have been conducted on online learning, comparing the learning outcomes and motivation of online and face-to-face learners, e.g., Mollenkopf et al. (2017), King et al. (2022), and others. In our research, we set out to find out whether these data are still valid, or whether they have changed in any way over the years.

For example, it is worth mentioning research that focused on comparing two parallel classes. The results of this research show that there was only a small insignificant difference between the learning outcomes of online and face-to-face students, with slightly better results for face-to-face students. Thus, online learning can be just as good as face-to-face learning and it depends on the needs of the students as to which form suits them better (Mollenkopf et al., 2017).

Face-to-face learning provides immediate interaction between teacher and students, allowing for quick feedback and a personal approach. Students can also better focus on the teacher's explanation. Face-to-face learning also provides a structured learning environment, which helps some students stay disciplined and study regularly. On the other hand, online learning offers flexibility and the ability to learn from anywhere with an internet connection. Students have control over their learning pace and can organize their study time according to their needs (Gherhes et al., 2021, King et al., 2022, Anderson et al., 2020).

However, both forms of learning also have limitations. With online learning in primary schools, we may encounter problems such as truancy, lack of motivation, increased absenteeism, classroom indiscipline, or unfamiliarity with technology (Stoloff et al., 2022).

Overall, neither form of learning is generally better than the other. The choice between online and face-to-face learning depends on the preferences and needs of individual students, the nature of the course, and the learning objectives. Some institutions are opting for a hybrid model that combines elements of both forms to provide learners with a choice that brings greater convenience and flexibility to learners, thereby increasing both learning interest and learning outcomes.

1.2. Hybrid learning

Hybrid learning combines elements of face-to-face and online learning. This combination allows us to take advantage of both forms of learning. According to research abroad (Gamage et al., 2022), the hybrid model is often preferred because of its flexibility and the possibility of an individual approach to each student. Gamage et al. (2022) even report that both students and teachers are in favor of a gradual transition to hybrid learning.

Hybrid learning should not be confused with the term blended learning as it has its own specificities. Hybrid learning is when the teaching takes place in a face-to-face setting, i.e. on the premises of the school where some of the students and the teacher

are present. At the same time, however, there is also an online video call during the lesson, through which other students can join in the live teaching from home. So, in simple terms, we can say that it is a combination of face-to-face and online learning into one unit, where both of these forms of learning take place simultaneously. However, it is always necessary to plan this form of learning properly and to organize the activities of students present in the classroom and connected online. In contrast, the term blended learning refers to the use of both face-to-face and online learning, but with the difference that the two forms of learning alternate and therefore do not take place simultaneously, as is the case with hybrid learning (Beatty, 2019).

Hybrid learning is a combination of online and face-to-face learning. Therefore, if we want quality hybrid learning to lead to better learning outcomes and learner motivation, we need to take advantages of online and face-to-face learning, while avoiding their disadvantages.

2. METHODS

We decided to design our research as quantitative research and therefore we chose a questionnaire survey to collect data. This offers easy and quick distribution of questions and data collection (Chráska, 2016, Gavora, 2008). In this first phase of our research, we focused only on the students at the University of Ostrava, but in the future, we will extend our research to other universities that include the Faculty of Education.

The development of the survey questions took place during November and December 2022. The subsequent distribution of the questionnaire and data collection took place from December 2022 to February 2023. During the next three months, we systematized, analyzed, and then interpreted the collected data.

2.1. Research file

In the first phase of our research, the research file were students of the Faculty of Education of the University of Ostrava. In order to generalize the results of the questionnaire survey, we used random sampling.

Specifically, our questionnaire was distributed among 409 students, i.e. future teachers. Thus, the obtained sample includes students across different disciplines, from humanities to natural sciences, as well as all levels of education, i.e. from the primary schools to secondary schools.

Of the total number of questionnaires sent out, we received responses from 88 respondents, with a return rate of 21.5%. Of these, 66 were female and 22 were male. These respondents were in their first and second years of study at the time of the research, i.e. the last academic year 2022/2023, both in Bachelor's degree programs and in Master's or Continuing Master's programs.

2.2. Questionnaire survey

We decided to use Google Forms as a specific tool for creating questionnaires. The created questionnaire consists of a total of 15 questions. In the introduction of the questionnaire, respondents were introduced to the research topic, instructions for

completing the questionnaire and important concepts. The first part of the questionnaire contains 5 functional questions, i.e. focused on the respondents' data. The second part consists of 10 substantive questions. Of these, 5 questions sought experiences with online learning during the Covid-19 pandemic, and the other 5 questions focused on the advantages and disadvantages of online and face-to-face learning.

We used both closed and open-ended questions in the questionnaire we developed. Of the closed-ended questions, we used two dichotomous questions and eight polytomous questions, specifically two enumerative and six multiple choice questions, three of which were scaled items that used a scale of 1 to 5 (Chráska, 2016). For the open-ended questions, respondents were given the option to provide their own answers. We opted for the open-ended questions at this stage of the research because we did not want to influence the results obtained by guiding answers, whereby respondents' answers could be biased, however slightly. Our intention was to let the students think for a while about the advantages and disadvantages of online and face-to-face learning, so that they could think about what they themselves consider to be the most important and relevant.

3. RESULTS

We set out four research questions at the outset, so we will now present the results of each of these items separately. Based on the first five questions, we obtained an overview of the composition of the sample of respondents in terms of age and program of study, see Table 1, gender above, fields of study (multiple choice), see Table 2, and current year.

Table 1. Sample composition of respondents

Study program/ years	17–20	21–24	26–35	43–50	Total
Bachelor	51	9	0	2	62
Master's	13	1	5	1	20
Continuing Master's	0	5	0	1	6
Total	64	15	5	4	88

Source: Own work.

The majority of respondents were aged 17 to 20 years old in a Bachelor's degree program with a focus on mathematics, computer science, languages, citizenship or primary education. The majority of respondents (81) were in their first year, with the remaining 7 respondents in their second year, regardless of degree program.

The next 5 questions focused on experiences with online learning during the Covid-19 pandemic. The first of these questions explored experiences with online learning pre-pandemic. Here the answers of the respondents varied quite a bit. On a scale of 1 to 5, with 1 being excellent experience, most respondents (28) indicated option 5, that is, they had no experience with online learning and did not know how to use it. However, in terms of the number of respondents (23), option 2, that is, that their experience with online learning was quite good, came second. A further eighteen

respondents ticked option 3, eleven respondents ticked option 4 and the remaining eight ticked option 1.

Table 2. Combinations of fields of study of students of the Faculty of Education

Field of study/Level of school education	Primary education	Secondary education
Primary education	20	0
Physical education	0	5
Foreign languages	0	13
Czech language	0	9
Mathematics	0	22
Informatics	0	19
Education for citizenship	0	13
Art education	0	6
Specialized subjects	0	2

Source: Own work.

For the question focusing on the experience of online learning after the Covid-19 pandemic, respondents were already more in agreement. Most respondents rated their ability to work in online learning as good to excellent, again on a scale of 1 to 5, with 1 being an excellent experience. Forty-one respondents now indicated option 2 and twenty-six respondents indicated option 1. Sixteen respondents indicated option 3 and four respondents indicated option 4, with only one respondent indicating option 5.

Forty-two respondents identified poor internet connectivity as the biggest problem during online learning, with one respondent indicating that it was only sometimes. Ignorance and inexperience in organizing online learning was also a huge problem, with thirty-three respondents indicating this option. Similarly, inconsistency in the platforms chosen for online learning was a concern, which was indicated by thirty-two respondents. Not knowing how to work with specific applications was also a significant problem, indicated by twenty-two respondents, and not knowing how to work in an online environment, indicated by twenty respondents. Fourteen respondents perceived the support from teachers as insufficient, eleven respondents perceived it as insufficient from the school administration, and only three respondents perceived it as insufficient from parents. In twelve cases, respondents felt that there was a lack of digital learning resources, and nine respondents did not have enough technical equipment. Some respondents provided their own responses to this question. Here, three respondents agreed that the timetable was not respected during the online learning sessions, so that the lessons interfered with their free time or ran into the evening. Another three respondents perceived teacher inexperience with online teaching as a problem and two respondents had a problem with motivation during online learning. There was also a problem with the lack of information, which could be classified under the aforementioned “problem with the organization of online learning”. However, there was also a case where the respondent had no problem during the online learning.

We also wanted to know whether the school provided any training related to online learning to its students before, during, or after the Covid-19 pandemic, and to what extent the school explained everything needed for online learning. While the majority of respondents (58) indicated that no training was provided, only thirty respondents indicated that training was provided. However, in most cases the school explained everything they needed to know. On a scale of 1 to 5, where 5 means that the school did not explain anything to them, twelve respondents indicated option 1 and twenty-one respondents indicated option 2. In thirty-one cases where respondents marked option 3, the school provided them with at least some information. Fifteen respondents who marked option 4 and twelve respondents who indicated that the school did not provide them with any information on online learning considered themselves to be poorly informed.

3.1. Advantages of online learning

Although this section of the questionnaire was open-ended, a significant proportion of respondents agreed, see Table 3 for detailed results. Respondents perceived the biggest advantage of working from the comfort of their own home, where they can have enough time and peace of mind to work, a convenient environment, or can get up later. Flexibility is also a positive aspect of online learning. Specifically, this can be time flexibility, where learners can adjust their study schedule to suit themselves or choose their own pace of completing assignments. For some respondents, the advantage is that they can find everything in one place, can use several different resources, and can access information via the Internet. There is also the ability to return to lectures for self-study and a more individual approach to learning according to the learning style of the learner, or greater responsibility for studying. For four respondents, online learning provided greater motivation to learn and less stress. The last four respondents then stated that they themselves did not see any benefits of online learning.

Table 3. Advantages and disadvantages of online learning

Advantages of online learning		Disadvantages of online learning	
Work from the comfort of home	30	Lack of personal contact	37
No need to commute	29	Procrastination, loss of discipline	13
Flexibility	18	Problem keeping attention	18
Saving time	15	Problem with cheating on tests	4
Increase technical skills	8	Not suitable for practical subjects	3
Connect from anywhere	6	Technical issues	12
Possibility to connect the sick	5	More self-study, homework	5
Financial savings	4	Possibility of information loss	4
More resources in one place	4	Long time at computers	5
Option of self-study	4	Insufficiently explained materials	3
More motivation	4	Lack of motivation	4
		Lack of technological skills of teachers	5
Total	127		113

Source: Own work.

3.2. Disadvantages of online learning

Again, see Table 3 for detailed results of the disadvantages of online learning. Here, a large proportion of respondents agreed on the lack of personal contact with other classmates and teachers. Poor internet connectivity or other technical problems (e.g. a broken microphone or camera, a slow or outdated computer that cannot run the necessary applications) can also be a problem, hence another issue, namely the possibility of losing information during online transmission. The final problem, agreed upon by a larger number of respondents, is the difficulty in maintaining attention during online instruction, or only in some subjects, and the inability to concentrate or the possibility of being distracted. There was also a problem with cheating on tests and the associated reduction in time to complete the test. Three respondents agreed on the lack of explanation of the material and problems with understanding it, as well as the inability to use online learning in practice-oriented courses. Other disadvantages mentioned by the respondents include slow feedback on problem solving, inconsistency of platforms or generally poorly organised teaching and the resulting confusion, as well as little space for learners to express themselves, unequal learning conditions, less time to go through the required amount of material, or difficulty in explaining more complex material. However, there were also two cases where respondents found no disadvantages.

3.3. Advantages of face-to-face learning

In the case of the advantages of face-to-face teaching, many respondents were based on the already mentioned disadvantages of online teaching, see Table 4.

Table 4. Advantages and disadvantages of face-to-face learning

Advantages of face-to-face learning	Disadvantages of face-to-face learning		
Personal contact	47	Commute	40
Better focus	21	Fixed schedule	13
Instant feedback	14	Environment	8
Better explanation of the material	10	Not individualized	5
Regular regime	8	Sick pupils cannot attend	3
Possibility of demonstrations	5	Missing shared storage	3
Environment	2	Bad concentration	2
More motivation	2	Low motivation	4
More awareness	3		
Paper tests	2		
No internet required	4		
Total	118		78

Source: Own work.

Therefore, face-to-face contact with classmates and teachers was very common. Furthermore, the possibility of better concentration and attention retention, fewer stimuli for distraction and more engagement in the learning process. The speed of making arrangements, the possibility of immediate feedback or the ability to ask

for help is also a significant advantage. Better explanation of the material and better understanding of the material can also be an advantage. For some respondents, a regular routine, a fixed schedule and less self-study are important. The advantage of face-to-face teaching is also the opportunity to use demonstrations and aids, which is particularly important in vocational subjects. Two respondents prefer paper-based tests and the impossibility of making copies.

3.4. Disadvantages of face-to-face learning

Lastly, respondents reflected on the disadvantages of face-to-face teaching, and here too they based their opinions on the advantages of online teaching, see Table 4. For many respondents, commuting and the resulting time or financial demands are a problem. Nine respondents found no disadvantages to face-to-face teaching. A disadvantage can also be an unsuitable environment, where learners cannot relax and do not have the comfort and peace of mind to learn as in a home environment, they are stressed and find it more mentally challenging. Respondents also encountered the problem of low motivation due to traditional frontal teaching or boring lectures. Sick pupils miss classes and then have to catch up, and if they go to school they can infect other pupils. Some respondents lacked an online repository to keep track of assignments and access study materials.

3.5. Innovation of face-to-face learning with elements of online learning

The majority of learners would like to use elements of online learning in their face-to-face learning. Only two respondents said they would not want these elements in face-to-face learning. The majority of respondents (57) indicated the possibility of using digital learning resources, providing study materials and lecture recordings so that they could return to the material later. Online assignments were also very popular, with fifty-five respondents indicating this. Next was the use of shared storage, selected by forty-nine respondents. The ability to join an online class from home would be welcomed by forty-seven respondents. Thirty-four respondents need space for self-study, while only seventeen respondents need online collaboration.

4. DISCUSSION

It is clear that for many students, the key lies in the interaction with other students or teachers. This is confirmed, for example, by the results of the research of Bickle et al. (2019) that the ability to learn does not only depend on the methods and content of teaching, but also on social interaction and interpersonal relationships.

Our research results also confirm other researches in that the key to quality online or hybrid learning lies with teachers. And also, that many factors influence learning outcomes, such as learning style, ability, personal goal, teaching methods and technology (Lin et al., 2017). We found that problems in online learning were often caused by its poor organization (as Rath et al., 2019), whether it was a lack of experience on the part of the teacher or the learners, a problem of lack of learner awareness or insufficiently explained material, inconsistency of the chosen platforms, but also a loss of discipline or a problem of attention retention, which can also be experienced

by students in face-to-face classes if it is not properly organized. These results are confirmed e.g. by Bickle et al. (2019), Gamage et al. (2022).

CONCLUSION

As we stated at the outset, the main objective was to arrive through the research questions at ways to appropriately organize hybrid learning. The main idea was to build hybrid learning on the advantages of online and face-to-face learning, so that it would be an ideal choice for future learning. At the same time, however, it is important to avoid the disadvantages of online and face-to-face learning.

Hybrid learning offers the potential to remove the disadvantages of online and face-to-face learning. The fact that each student can choose whether to attend in person or online is the main reason why it should receive more attention in the future. It is a choice that individualizes learning and allows students to use their own learning style. Whether they are sick, or students who have a commuting problem, they can join an online class and yet the class can also be taught in person with all the benefits it offers for those who, on the other hand, prefer this form of learning. In secondary school, this choice would have to be accompanied by certain rules to prevent truancy. One possible weakness of our research is the smaller range of respondents to the questionnaire survey, but as we have already mentioned, this is only the first phase of our research for now, and we will therefore eliminate this shortcoming later by expanding the range of respondents to other universities with faculty of education. It is also clear that the area of hybrid learning still offers a lot of space for further research, so we want to continue to focus on this area, to gradually explore and complete the broader picture of this issue. However, our primary goal is to identify methods for effectively organizing hybrid learning, ensuring it becomes the optimal form of instruction for both students and teachers.

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