


# From on-site to online collaborative learning

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**ABSTRACT:** This study aims to determine the impact of switching from on-site to an online education on the collaborative learning experience of third-year students in Hospitality Management. An online survey containing seventeen questions was answered by 90 students. The results show that the students perceive more disadvantages than advantages of the switch from on-site to online education, resulting in 74% qualifying it as a negative experience. Furthermore, overall appreciation was significantly related with impact on study behaviour, like time spent on study, attending classes or asking questions. In order to get a more complete view on how all students perceive and practise online education, further research is recommended on design and delivery of online collaborative learning.

**KEYWORDS:** collaborative education, learning experience, online education, study behaviour

## Introduction

### Context and rationale for the study

The hospitality industry is one of the most service-oriented industries, with a high level of guest interaction (Widjaja, 2005). Interaction in this context is mostly concerned with face-to-face situations, while the world around us is gradually digitising. Despite the fact that technological innovations play an increasingly important role in our lives, people will continue to have a need for personal contact for the foreseeable future.

This research provided an insight into the current collaborative learning experience of future hospitality professionals. It is a way of learning in which several skills are practised that are essential for hospitality students to become successful in their industry. Skills such as teamworking are very important in this industry, because only with communication and collaboration can an optimal guest experience be realised.

Normally, at the institute where this research was conducted, these skills are practised through on-site practical learning at the on-campus student-run hotel, group assignments and network events. Currently, due to the COVID-19 pandemic, this way of collaborative learning is performed in an online study environment. If this way of learning progresses over the longer term, it could possibly have an effect on the development of social skills of, among others, the future hospitality professionals. This may ultimately have an impact on the future hospitality industry.

### Purpose and relevance of the study

The goal of this study was to gain knowledge about how the switch from on-site education to online classes has had an impact on the collaborative learning experience of third-year students in Hospitality Management. The research provides a deeper insight

into the advantages and disadvantages of online collaborative learning and the way the study behaviours of the students has changed as a result of the switch due to COVID-19. Moreover, the research offers educational establishments recommendations to improve the online collaborative learning experience for future students.

### Literature review

According to Barr and Miller (2013), online education is not the most preferred learning environment of every student. This is because the isolation causes a feeling of loneliness and has an impact on the overall learning experience. Fortunately, more and more educational institutions add value to collaborative learning (CL), "a situation in which two or more people learn or attempt to learn something together" (Dillenbourg, 1999, p. 1). Value is added by developing the students' social competences (Laal & Ghodsi, 2012), but also by increasing skills such as critical thinking and self-reflection (Chiong & Jovanovic, 2012). The current situation, the increased technological knowledge and the growing use of online communication in society offers many new opportunities for "online collaborative learning" (Lee, 2008, p. 2).

An example of an online collaborative learning application is computer-supported collaborative learning, also known as CSCL (Lee, 2008). Programs like Microsoft Teams and Blackboard Collaborate are good illustrations. The question of whether this online education has a positive or negative impact on the collaborative learning experience is a topic that is, according to Popov et al. (2019), likely affected by the students' viewpoint of online collaboration and its related study behaviours. "Educational benefits of online collaborative group work have been confirmed in numerous research studies"

(Chiong & Jovanovic, 2012, p. 1). Online education provides new opportunities for the collaborative learning process because distance is not a problem anymore, which increases the flexibility for the participants (Curtis & Lawson, 2001). Furthermore, the way of collaborating is more transparent, since messages that are sent about agreements made are available to every group member. Likewise, it is also easier to determine the participation level of each individual (Macdonald, 2003).

According to Janssen et al. (2005), there have been several studies that compared and observed people who worked in groups. Some groups did this in a face-to-face situation and others via computer-mediated communication (CMC), and it seems to be that collaborating via CMC indeed resulted in some positive outcomes. CMC can, for example, be a very useful way of communicating during the decision-making process (Fjermestad, 2004).

Furthermore, Janssen et al. (2005) claim in their report that according to Fjermestad (2004) and Benbunan-Fich et al. (2003), CMC groups have more complicated and cognitively more challenging group discussions in which group members participate more equally. Lee (2008) affirms the advantages of CSCL too, and repeats benefits such as the positive impact on group contacts.

Nevertheless, there are of course also studies that reported the opposite. According to Capdeferro and Romero (2012), online collaborative learning can cause negative feelings like frustration. Frustration can be caused by several things. Some of the factors Hara and Kling (1999) found during their research were technical issues and the absence of immediate feedback. Another factor that causes frustration or stress is, for example, obstacles faced when studying the content due to misunderstanding and lack of non-verbal communication (Curtis & Lawson, 2001).

Some other negative experiences with online collaborative learning are group members who do not participate or even do not attend, and the amount of time spent on an exercise in comparison to in a face-to-face setting (Goold et al., 2008). Besides this, online education also requires much more self-discipline (Alexander et al., 2012), which is a skill that not everyone naturally possesses but can have an essential impact on the collaboration.

Overall, it can be said that the studies showed different outcomes when discussing the impact on the collaborative learning experience via an online platform. Currently, more negative than positive aspects have been reported about CSCL/CMC, which is probably because the literature is quite outdated. Moreover, the technological improvements, the increased confidence of people with digital tools (generational differences) and the many new experiences with this way of learning will perhaps give some new insights.

### Conceptual model

The conceptual model presents the impact of online education (independent variable) on the collaborative learning and study behaviour (dependent variables) and the way they impact each other.

### Problem statement and research questions

The educational switch from on-site to online is a new experience to every third-year Hospitality Management student in the institution studied. The literature review on this subject shows that there are advantages and disadvantages related to an online study environment which are expected to have an influence on study behaviour. It is important to know exactly what impact they have and how they contribute to a positive or negative online collaborative learning experience.

Our problem statement is "What impact did the switch from on-site to an online study environment have on the collaborative learning experience of third-year Hospitality Management students?" And the research questions are:

1. How did the educational switch from on-site to online influence the study behaviour of the students?
2. What are the perceived disadvantages of online collaborative learning?
3. What are the perceived advantages of online collaborative learning?
4. What are, according to the third-year students, opportunities for the educational institute to improve the future online collaborative learning experience?

### Method

#### Type of research

For this research, a descriptive research design has been chosen. According to Brotherton (2015, p. 13), descriptive research provides "a 'picture' of the what, who, when and where to create a context for further investigation". It is used to discover possible relationships and to obtain information from the population that might lead to useful recommendations.

Since all educational institutions had to provide their students almost overnight with online education only in early 2020, it makes sense that it likely affected the collaborative learning experience of the third-year Hospitality Management students. Whether the transition has had a positive or negative impact remains to be seen and is answered based on the quantitative data that was gathered during this research. With these outcomes the authors were able to identify what kind of impact online education had on the collaborative learning experience of these students and what educational institutions could do in order to improve future collaborative learning in an online study environment.

#### Survey

For data collection, an online survey was created, which was generated and administered using the program Google Forms. The survey took approximately five minutes to complete and consisted of thirteen multiple choice and four open questions, with a control question at the beginning. The survey had a basic design and was easy to fill out in to make sure that respondents were more willing to participate. The questions covered subjects like online group assignments, classes, communication, study time, issues in the online collaborative learning process and the advantages it might have. Furthermore, respondents had the opportunity to give recommendations to improve the future online study environment.

Before the survey was sent, it was piloted with a selected group of people who did not belong to the population under study, but had similar characteristics. After this process, the survey was adjusted, before the final survey was sent out.

### **Sampling and data collection**

The population used for the research were the third-year Hospitality Management students of a University of Applied Sciences in the Netherlands. The sample of 90 participants was selected with a non-probability sampling method, and the participants needed to meet the criterion of being a student in the particular module. In total, 310 third-year students met this criterion and were invited to participate in the study. Prior experiences have shown that many people do not bother to fill out a survey and therefore a €15 takeaway voucher was raffled among the participants. The online survey program Google Forms automatically processed all data that was provided by the respondents into an Excel-file that was transferred to SPSS for further analyses. If the respondent decided to leave their e-mail address for the give-away, it was presented in a separate section. After the survey was closed, all registered e-mail addresses were collected in a random selection program in order to decide who was the lucky winner. After the winner had been determined, the authors contacted the winner via email and presented the voucher.

The number of responses were monitored throughout the week after the survey was sent. After eight days, 69 surveys were completed and the authors decided to send a reminder. This resulted in a few extra responses, but the goal of 100 participants was still not met. Therefore, the authors decided to send the survey link via WhatsApp to specific, selected individuals (who met the criterion of being third-year students) with instructions that they could fill it out and send it to people they know who met this criterion as well. With this action, a snowball effect was created, which eventually resulted in a final response rate of 29% ( $N = 90$ ).

### **Planned data analyses**

To be able to draw conclusions, the Statistical Package for Social Sciences program (SPSS) was used. Before the answers could be entered into SPSS, the automatically made Excel-file by Google Forms needed to be transferred into readable SPSS outcomes. This meant that all multiple-choice answers were changed into numbers and open-question responses were separated into a Word document. After this process, the authors were able, by using the descriptive statistics function in SPSS, to create tables that indicated both frequencies and percentages. The descriptive statistics were used because the measurement level of the data was nominal.

In order to answer the first research question "*How did the educational switch from on-site to online influence the study behaviour of the students?*", it was primarily important for the authors to know if the students were actually experiencing an influence.

Therefore, the students were asked to answer whether they have the feeling that the online collaborative learning

environment had influenced their study behaviour (Yes/No). With the descriptive statistics function on SPSS, a table with the amount of people who answered Yes or No and the percentages per category were presented.

Students were further asked to complete several questions about how they think their study behaviour in the online study environment changed in comparison to the on-site situation. The questions about following classes, consultation, time spent on group assignments or the rest of the study and communication were also presented in tabular format with frequencies and percentages. This gave a clear overview of the students' changed study behaviour and which elements had been influenced the most.

Research question 2 and 3 about the perceived disadvantages and advantages of online collaborative learning were presented and interpreted in the same way. The frequencies and the percentages in the table gave a clear picture of which advantages and disadvantages were experienced the most (mode). Besides the predetermined advantages and disadvantages, the participants had the opportunity to describe any additional ones that they experienced. These outcomes were recorded and presented in a separate table.

In order to be able to answer the problem statement "*What impact did the switch from on-site to an online study environment have on the collaborative learning experience of third-year Hospitality Management students?*", the authors asked the participants to indicate if they experienced the overall online collaborative learning as positive or negative.

Due to the fact that the authors expected that at least some students would indicate that they experienced this switch as negative overall, the fourth research question "*What are according to the third-year students, opportunities for the educational establishment to improve the future online collaborative learning experience?*" was included. Because of the fact that this question was an open question, the authors decided to list these recommendations in a separate table.

The descriptive statistics provided enough information to answer the research questions and the problem statement. However, we were curious if there was a relationship between the overall perception of online collaborative learning and its influence on their study behaviours. Therefore, we decided to do a chi-square test as well, because this is the indicated statistical tool for testing the relationship between nominal variables.

### **Ethical issues**

In the introduction of the survey, it was indicated that the survey would be voluntary and anonymous, unless the participant decided to leave their e-mail address for the give-away. In this case, the personal data was processed according to the General Data Protection Regulation (GDPR) guidelines. The e-mail addresses that were used to send the survey were from the school's database, and therefore complied with GDPR guidelines.

## Results

### Descriptive statistics

As shown in Table 1, a total of 78.9% of participants had the feeling that the online collaborative learning influences their study behaviour. Table 2 represents which aspects of their study behaviour are influenced and in what way.

Based on the results in Table 2, it can be concluded that online education has an impact on the number of classes that the majority of the participants follow. A total of 26.7% of the participants indicated that they currently follow more classes, while 28.9% participants stated that they follow fewer classes. The overall time that the participants spent on their study in the online study environment decreased by 44.4% of the students. While most of the group spent less time on their study, 51.5% of the participants indicated that they currently spent more time on group assignments but had less consultation with their fellow students (64.4%). Finally, most of the participants stated that they ask their teachers fewer questions in the online study environment (53.3%).

Apart from the abovementioned changes in the participants' study behaviours, they indicated that there were more consequences of collaborating in an online environment. The majority of the group stated that they were less motivated, had more problems with concentration, became lazier and were more easily distracted (Table 3).

As shown in Table 4, it can be concluded that the overall communication in an online study environment is perceived as

TABLE 1: Impact of online collaborative learning on study behaviour (N = 90)

Influence on study behaviour	Yes		No	
	F	%	F	%
	71	78.9	19	21.1

TABLE 2: Impact on study behaviour (N = 90)

	Less/fewer		Equal		More	
	F	%	F	%	F	%
Following classes	26	28.9	40	44.4	24	26.7
Time spent on study	40	44.4	21	23.3	29	32.2
Time spent on group assignments	19	21.1	25	27.8	46	51.1
Consultation with fellow students	58	64.4	18	20.0	14	15.6
Questions to teacher	48	53.3	18	20.0	24	26.7

TABLE 3: Statements made by participants regarding the impact on study behaviour

"It influences my behaviour because I become more lazy and procrastination."
"My motivation is a lot lower, and I can focus less because I am sitting behind my laptop the whole day."
"My motivation drops on some days since at home I get easily distracted. When I work on-site, I focus on school and that is where my concentration goes. This factor is what I miss at home."
"Less motivation, more (and quicker) tiredness due to spending a lot of time in front of the computer without any live interaction, loss of concentration, thoughts of skipping the lectures because they are recorded anyway, irritation because of the internet and technological issues."

TABLE 4: Impact on communication (N = 90)

	Worse		Equal		Better	
	F	%	F	%	F	%
With teachers	60	66.7	24	26.7	6	6.7
With fellow students	66	73.3	21	23.3	3	3.3

worse than in an on-site situation, whether this is with fellow students (73.3%) or teachers (66.7%).

As shown in Table 5, better group availability and flexibility was perceived as the main advantage of online collaborative learning (37.8%). Besides that, more transparency (27.8%) was also seen as a benefit. However, 35.6% of the participants indicated that they experienced none of the mentioned advantages.

Apart from the abovementioned advantages of online collaborative learning, the students indicated that with online classes they have more time for their personal lives and are more flexible and able to make their own plans. Overall, it can be concluded that students perceive a better school/work-life balance as the main additional advantage of online education.

In Table 6, some statements are listed that participants made regarding the additional advantages.

TABLE 5: Advantages of online collaborative learning (N = 90)

	F	%
Better group availability/flexibility	34	37.8
More transparency	25	27.8
Better decision-making process	10	11.1
Greater knowledge development	7	7.8
More equal participation	16	17.8
None of the advantages	32	35.6

TABLE 6: Participant's statements about perceived additional advantages

"You have more time for personal things and classes can be followed everywhere."
"I can divide my tasks how I prefer them."
"Overall, more flexibility, not only within groups."
"I experience a better work-life balance."

Looking at the results in Table 7, we see that technical issues were most often listed as a disadvantage of online collaborative learning (77.8%). However, misunderstandings (72.2%), group participation problems (61.1%), problems with self-discipline (54.4%) and interaction/feedback delay (53.3%) were also perceived as common disadvantages. Only 3.3% of the participants indicated that they experienced none of these issues with online collaborative learning.

Apart from the abovementioned disadvantages of online collaborative learning, participants had the feeling that the quality of their study had become worse. Moreover, many students stated that they miss especially their social contacts in the online study environment.

In Table 8, some statements are listed that participants made regarding the additional disadvantages.

Finally, it can be concluded that the majority of the students (74.4%) perceived that the switch from an on-site to online study environment has been a negative experience (Table 9).

**Recommendations by the students**

In the questionnaire, the participants had the possibility to provide the educational establishment with recommendations on how to improve the online collaborative learning experience. Many students stated that they had a need for more Q&A sessions in which they received information and feedback about the study programme. Moreover, they indicated that teachers should take more responsibility and be more involved to stimulate the online collaborative learning, but especially the demand for on-site classes was high. At the same time, the university needed to ensure that they followed the guidance from the government COVID-19 taskforce at all times.

In Table 10, some recommendations are listed regarding the online collaborative learning that participants gave.

**Testing for relationships**

Chi-square testing shows a significant relation between influence on study behaviour and the overall experience ( $\chi^2 = 13.204$ ;  $df = 1$ ;  $p < 0.001$ ) (Table 11).

**Discussion**

In this section, results will be discussed per research question by interpreting the findings, comparing them with prior research and indicating their implications for the theory and practice of online collaborative learning.

**How did the educational switch from on-site to online influence the study behaviour of the students?**

Results show a significant relationship between the overall experience and the influence on study behaviour. This is in line with the literature which indicates that the switch from on-site to online study environment is likely affected by the students' positive or negative viewpoint of online collaboration (Popov et al., 2019). Students who experience the switch from on-site to online education as negative report more impact on their study behaviour. In the group who said that the switch had no influence on their study behaviour, most students experienced the switch as positive.

In agreement with the literature, the third-year Hospitality Management students who participated in the survey indicated that they became less motivated in an online study environment

TABLE 7: Disadvantages of online collaborative learning (N = 90)

	F	%
Technical issues	70	77.8
Interaction/feedback delay	48	53.3
Misunderstandings	65	72.2
Group participation problems	55	61.1
Problems with self-discipline	49	54.4
Problems with time management	27	30.0
No issues	3	3.3

TABLE 8: Participant's statements about perceived additional disadvantages

"I am very annoyed with how bad the quality of some of our lectures is now. We still pay more than €2 000 per year for this study, but the quality of our education has got way worse. With quality, I mean teachers not understanding BB Collaborate or MS Teams, teachers with bad internet access, teachers not doing anything to try and motivate the students a little (like turn on your camera), etc."  
 "I experience fewer social contacts."  
 "There is less opportunity for networking."

TABLE 9: Overall experience (N = 90)

	F	%
Positive	23	25.6
Negative	67	74.4

TABLE 10: Participant's recommendations for online collaborative learning

"Training for the teachers on how to work online and motivate the students."  
 "Schedule more Q&A session about the modules itself."  
 "Teachers should take more responsibility and guide us more."  
 "Obligate teachers to answer within two days, also during the holiday."

TABLE 11: Relation between overall experience and influence on study behaviour (N = 90)

Influence on study behaviour	Overall experience		
	Positive	Negative	Total
Yes	12	59	71
No	11	8	19
Total	23	67	90

(Goold et al., 2008). This is reflected in changes in study behaviour, such as following fewer classes, asking fewer questions to teachers, spending less time on studying and having fewer consultations with fellow students. It is remarkable that students indicated that they spent more time on group assignments, while spending less time on studying and consultations with fellow students. A possible explanation for this situation is that group assignments are processed in a different way: if physically sitting together and discussing is not possible anymore, students might decide to divide tasks, which could require more time and effort by each individual member. As a result, students possibly have less time to spend on the rest of the study programme such as assessments and placement preparation.

If it is indeed the case that collaborative learning takes so much more time online than on-site and causes students to not

have enough time to prepare themselves for other aspects of the study programme, educational institutions could use this information to improve the quality of their online education. Collaborative learning is not only to develop students' teamworking skills, but also communication, planning and managerial skills, which are equally important to becoming a successful hospitality professional.

#### ***What are the perceived disadvantages of online collaborative learning?***

The overall negative experiences of the students are mainly caused by the many perceived disadvantages of online collaborative learning. As stated in prior research, the main causes of frustration during online collaborative learning are technical issues, absence of immediate feedback (Hara & Kling, 1999), misunderstandings (Curtis & Lawson, 2001), problems with group-participation, time management (Goold et al., 2008) and self-discipline (Alexander et al., 2012). All of these factors are also perceived as disadvantages of online collaborative learning by the participants, with technical issues as the main disadvantage. The possible explanation for this outcome could be that this educational programme has many international students who travelled back to their home countries due to the COVID-19 situation. Students were also forced to stay at home and therefore all students had to deal with the quality of their Wi-Fi network at home, which might not be as good for everybody else's.

On top of the disadvantages mentioned in the literature, students also experienced a decreased quality of the educational programme and a decreased possibility to build and maintain social contacts and networks. This isolation can cause a feeling of loneliness and can have an impact on the overall learning experience (Barr & Miller, 2013). The perceived decline of educational quality can be for several reasons. Some reasons that are indicated by students are, for example, that teachers do not have enough knowledge about the computer programs that they work with, have bad internet connections, do not actively interact with the whole group or do not share all content that belongs to the assignments or classes that are given. When this is indeed the case, these outcomes are very useful for educational institutes to know to be able to change these things and improve the quality of the student experience.

The social problem in this online study environment is something that cannot be changed that easily by educational institutions. This is because the COVID-19 pandemic forces the government to take decisions about social contact that impact the whole of society. Students stated that online collaborative learning causes a feeling of loneliness and is perceived as negative overall, while educational programmes provide students with many group assignments. These group assignments stimulate social interactions between students, especially in the online study environment. However, it is obvious that most of the students do not experience this as personal social interaction, because they probably have a need to share their personal feelings with someone (most of the time outside of the group), which does not occur that often during school projects.

#### ***What are the perceived advantages of online collaborative learning?***

The positive overall experience of the students is mainly due to the perceived advantages of online collaborative learning. Students indicated that better group availability and flexibility and more transparency were the main advantages of online collaborative learning. The group availability and flexibility were, according to the students, partly because of the fact that they do not have to travel to school, which saves them much time. This outcome is in line with Curtis and Lawson (2001), who found that online education increases the flexibility for participants, since distance is not a problem anymore. The increased transparency is most likely due to increased arrangements and agreements made on communication platforms such as WhatsApp.

Contrary to the literature (Fjermestad, 2004), most of the students did not perceive greater knowledge development, better decision-making processes or more equal participation as an advantage of online collaborative learning. A possible explanation why most students did not experience greater knowledge development could be because they found that the quality of the online education had become worse. The decision-making process in an online study environment can be influenced by the lack of non-verbal communication (Curtis & Lawson, 2001) and can cause misunderstandings, which might lead to a slowed down decision-making process. Lastly, a possible explanation for most students not experiencing more equal participation between group members could be caused by the fact that students are not able to control the amount of time each member spends on their individual part, something which is possible in a face-to-face setting.

Students indicated that they had less consultation and communication with their fellow students and did not experience more equal participation in an online study environment. These outcomes are quite contradictory in relation to the increased transparency that was mentioned earlier, especially about participation. A reason that was given to explain why students probably do not experience a more equal participation was because of the fact that they were not able to control the work effort of their fellow students.

#### ***What, according to the third-year students, are opportunities for the educational institute to improve the future online collaborative learning experience?***

Because of the fact that the online collaborative learning experience at this institution was mainly perceived as negative by students, many students suggested improvements to turn this experience into a more positive one. For some students, the negative viewpoint cannot be changed, but based on the recommendations, this experience can be much better for many students if a few easily changeable elements in the online study environment were taken into consideration. Elements such as more Q&A sessions, working on MS Teams instead of BlackBoard Collaborate, training for teachers on how to give good online workshops, having teachers respond within 48 hours including during holidays, and improving the interaction between students and the teacher by, for example, an introduction round at the start of each session and the obligation to turn the camera on.

Moreover, some students recommend that this institution give on-site classes again, for example, in smaller groups, because it provides a better overall collaborative learning experience. The number of students who gave this recommendation was not

great because many students might not see it as possibility in the COVID-19 situation. It was claimed that other educational programmes at the same institution do offer on-site classes, for example, one day per week in small groups. When these students learned this, especially the ones who experience online collaborative learning as negative, they might have recommended this as well. Therefore, this is something to take into consideration because it might affect the overall learning experience of the school and therefore influence the choice of future hospitality students.

### Limitations

This study has potential limitations. The switch to an online study environment is not voluntary for the participants since schools in the Netherlands were, due to COVID-19, forced to close and to supply online education. Students did not sign up for an online education and therefore online learning is not something they wanted in the first place. Consequently, it can be reasoned that students have a negative view of and a biased opinion about online education, which potentially influences the conclusions.

Another consequence of the pandemic is the fact that students not only have to deal with a switch to an online study environment, but also experience changes and restrictions in their personal lives. These consequences of the COVID-19 outbreak potentially have a great impact on most of the students, and therefore their experiences might quickly be perceived as negative.

### Recommendations for further research

In the case of further research on online collaborative learning, it is recommended to expand the sample size. While doing this, it is important that demographic characteristics such as gender, nationality, age and study year are included to be able to discover significant differences. Moreover, it is wise to make use of the snowball method for data collection because people are more likely to participate when they are addressed personally by someone they know.

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