

# The experience of international students at Dutch higher education institutions during the COVID-19 pandemic

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## Main findings

A survey conducted between 15 December 2020 and 10 January 2021, among 357 international students enrolled at Dutch higher education institutions, shows interesting results regarding their experience during the COVID-19 pandemic.

### **Mixed satisfaction with study experience, positive about starting studies in September at a Dutch higher education institution**

- Overall, three quarters of international students who started their studies in September 2020 feel neutral about, or are either happy or very happy with their decision to start their studies at a Dutch higher education institution in the autumn 2020 semester.
- Some 23.0% of respondents are neither satisfied nor unsatisfied with their study experience since September 2020, and about equal numbers of the students are either satisfied or very satisfied (36.7%) as are either unsatisfied or very unsatisfied (39.5%).
- On average, the Netherlands' handling of the COVID-19 pandemic, including its dealing with international students, has not affected respondents' likelihood to select or recommend the Netherlands as a place to study in the future.

### **Students who also had on-campus lectures were more satisfied, space for quiet work is lacking at home**

- Students who have 75% or less of their classes online were more satisfied with their study experience in the 2020 autumn semester (47% were either satisfied or very satisfied) than students with almost all (75-100%) of their classes online (34% were either satisfied or very satisfied).
- Two thirds of respondents indicated they do not always have a quiet place to study.
- Students who started in or after September 2020 were either satisfied or very satisfied with their autumn semester study experience more often than students who started prior to September 2020.

### **Substantial numbers of international students struggle with anxiety, loneliness and are dissatisfied with social life**

- A substantial proportion of international students is dissatisfied with their social life and struggling with emotional problems.
- The respondents worry most about their future professional career, followed by study issues and future education.
- EEA students are more often satisfied or very satisfied with their social life than non-EEA students.
- Feeling anxious and lonely is more prevalent among international students who lived in the Netherlands during the autumn semester than among students who lived abroad (e.g. to be closer to their families) in the same period.
- International students who are more satisfied with their social life are also more satisfied with their study experience as a whole.

### **Concerns of Dutch and international students coincide**

- The concerns of international students are similar to those of Dutch students, when it comes to lacking a quiet place to study, as well as with regard to their social and emotional well-being being affected.

## Variables that influence satisfaction

- The logistic regression analysis shows that higher satisfaction with lectures is significantly and positively related to the students' overall satisfaction with their study experience since September 2020. A positive and significant – but weaker – influence is also observed for satisfaction with supervision and/or mentorship, and for satisfaction with collaboration with fellow students.
- Respondents with low anxiety and depression symptom levels are more likely to be satisfied or very satisfied with their study experience than those with moderate to high symptom levels.
- International students who are more satisfied with their social life are also more satisfied with their study experience as a whole.
- Students who attend a research university are more likely to be either satisfied or very satisfied with their study experience than those who attend universities of applied sciences. This might be explained by the different nature and format of education between the two types of institutions. Generally speaking, compared to students at research universities, students at universities of applied sciences tend to have more contact hours, more classes in groups and more practical coursework, which could mean that they had to adjust more to the online learning experience.

## Introduction

As the COVID-19 pandemic continues to grip much of the world, Dutch higher education institutions and students in the Netherlands continue to adjust and show flexibility. Students and lecturers alike started academic year 2020-2021 with online education and blended coursework settings, while finding digital ways to meet, work and socialise. While recent studies have focused on potential study delays due to the crisis, and on overall well-being of students in general, little is known about the specific experiences of international students with the online, blended and/or on-campus education at Dutch higher education institutions during the COVID-19 pandemic. Given their particular situation, international students may have views and needs which are different to those of the general student population.

International students make up approximately 12% of the total student population in the Netherlands, as reported in May 2020 in our publication *How is COVID-19 affecting international students' plans to study in the Netherlands?* We therefore reached out to international students across the Netherlands, asking them to share their experiences on how the COVID-19 pandemic was affecting their overall study experience and their well-being. This report follows on earlier Nuffic reports, entitled *How is COVID-19 affecting international students' plans to study in the Netherlands?* (published 19 May and 22 July 2020), as well as *How is COVID-19 affecting the plans of International graduates in the Netherlands?* (published 26 October 2020), in which Nuffic tried to capture the impact of the COVID-19 crisis on international student mobility to the Netherlands. This report focuses on what international students have actually experienced during the first semester of higher education impacted by COVID-19, inside as well as outside the (mostly virtual) classroom.

It is our ambition to help the Dutch higher education institutions and other sector stakeholders navigate the current uncertainties, as well as to inform the support provided to international students in these unprecedented circumstances.

The structure of this report is as follows: after providing contextual information regarding enrolment figures and expectations based on our earlier surveys, we focus on our most recent survey, from December 2020 to January 2021, concerning the experience of international students studying at Dutch higher education institutions during the COVID-19 pandemic. We first address the methodology and provide information about all of the respondents. Subsequently, we focus on the results, including the highlighting of differences between specific respondent groups, such as EEA students versus non-EEA students, or students who started their studies prior to September 2020 versus students who started in September 2020. In the last part of the report, we show the results of a logistic regression that was performed to ascertain the effects of several independent variables on the likelihood that respondents are satisfied with their study experience as a whole (from September 2020 onwards). This logistic regression analysis allows us to determine with factors matter most, which factors can be ignored, and how these factors influence each other. We conclude with various recommendations.

## Context

### Enrolment figures

Despite the COVID-19 pandemic and its consequences, the expected decrease of incoming international degree students in Dutch higher education is limited. In February 2021 the association for Dutch research universities, VSNU, reported that as of 1 October 2020 the total number of enrolled international students increased by 13% compared to last academic year. However, this is due to an increase of EEA students. The enrollment of students from outside the EEA did decrease by 4%. The association for Dutch universities of applied sciences, VH, reported a slight decrease of international students compared to the previous academic year (in total -2.7%). The decrease is the largest for the non-EEA students (-5.7%) compared to the EEA students (-1.6%).

### Expectations

Our surveys last year, in May and July 2020, had indeed shown a strong desire and determination among incoming international students to start their degree programme in the Netherlands despite the pandemic. In May, the overwhelming majority (80%) of respondents indicated they were still interested in studying in the Netherlands, with 67% indicating they hoped to start, as planned, in September 2020. In July, most of them planned to travel to the Netherlands to start with on-campus classes (39%) or online education (30%).

At the same time, prospective incoming students indicated a great number of uncertainties, with the ones most frequently mentioned being travel restrictions and visa procedures, which could account for the drop in new enrolments from outside the EEA.

### Comparisons with international research

We based some of the questions in our survey on those that were asked by Aristovnik et al. in their article entitled *Impact of the COVID-19 pandemic on life of higher education students: A global perspective* (2020). The scholars surveyed more than 31,000 students from over 100 countries worldwide between 5 May and 15 June 2020. This allowed us to compare our results concerning, amongst others, the students' computer skills and emotional life with the findings in their article. One has to bear in mind, however, that almost all respondents (94.1%) in the study by Aristovnik et al. were domestic students, whereas our respondents were all international students.

## 1. Methodology and information about the respondents

### 1.1 Distribution of the survey

The survey was aimed at all international students who, at the time of the survey, were either pursuing a full degree (Bachelor or Master) or on an exchange at a Dutch higher education institution (whether living in or outside the Netherlands). The survey was distributed among these groups through a variety of channels, such as the websites and social media channels of **Study in Holland**, **Erasmus Student Network (ESN)**, the Dutch National Student Association (ISO: **Interstedelijk Studentenoverleg**) and **the Netherlands Education Support Offices**. The survey could be completed between 15 December 2020 and 10 January 2021.

### 1.2 The respondents

In total, 523 respondents started with the survey. The responses of 166 respondents who ended the survey prematurely were excluded from the dataset. The total number of respondents included was therefore 357.

Of the respondents that were included (N = 357), 28.9% is pursuing a full degree at a Dutch university of applied sciences (63.1% a bachelor's degree and 36.9% a master's degree), and 68.6% is pursuing a full degree at a Dutch research university (30.2% a bachelor's degree and 69.8% a master's degree). Moreover, 1.7% are exchange bachelor's students and 0.8% are exchange master's students.

The majority of the students started studying at a Dutch higher education institution 1 September 2020 or later (56.3%). Moreover, 4.2% started between 1 January and 31 August 2020, with the remaining respondents (39.5%) having started before 1 January 2020.

The majority of the respondents pursued (the larger part of) their studies in the 2020 autumn semester while staying in the Netherlands (80.4%), compared to the 19.6% of students who lived elsewhere.

Moreover, we asked students approximately which percentage of their classes were online in the 2020 autumn semester. A large majority of 76.5% indicated that at least 75% of their classes had been online. In addition, 12.6% of the respondents stated that 50-75% of their classes had been online, while 6.4% indicated that 25-50% of their classes had been online and the remaining 4.4% indicated that 25% or fewer of their classes had been online.

With regard to nationality, the respondents are from 59 different countries. The majority of the respondents (85.7%) come from countries outside the European Economic Area (EU countries plus Liechtenstein, Iceland and Norway), which means that 14.3% of respondents were from an EEA country. Chinese and Indian students formed the largest group (each 16.3%) in this survey, followed by respondents from Vietnam (15.7%) and Indonesia (8.7%).

About two thirds (62.5%) of the respondents identify as female, and 35.6% identifies as male. The remaining respondents identify as gender diverse (such as non-binary and genderqueer) (0.6%) or prefer not to give their gender (1.4%).

The most common field of study among the respondents is Economics and Business (25.7%), followed by Engineering (17.4%) and Social Sciences (14.0%).

The average age of the respondents was 23.5 years old, with the youngest respondent aged 17 and the oldest student aged 58.

### 1.3 Representation

Even though the great diversity in countries of origin among international students in the Netherlands is reflected in this sample, the distribution in nationalities is not completely representative. The largest group of international students in the Netherlands by far is from Germany, followed by Italy and China. This means that India (no. 7 on the list of countries of origin in 2019-2020), Vietnam (no. 20) and Indonesia (no. 14) are overrepresented, and that Germany and Italy are underrepresented. In fact, the group of EEA nationals as a whole is underrepresented in this survey (14.3%), compared to the share of EEA students among the total number of international students studying in Dutch higher education. In academic year 2019-2020, 72% of international degree students in the Netherlands were from an EEA country.

With respect to the most commonly chosen fields of study, these correspond with the usual distribution of fields of study chosen by international students in the Netherlands. In 2019-2020, the three fields of study that international degree students chose most often were Economics & Business, Engineering, and Social Sciences. In addition, similar to the figures for 2019-2020, approximately twice as many respondents in this survey studied at a research university as at a university of applied sciences.

## 2. Analysis of the survey responses

### 2.1 Overall satisfaction with study experience, expectations, whether they would recommend the Netherlands

In the first part of the survey, we asked respondents general questions about, for example, how the COVID-19 pandemic affected their study experience, and how their experience has lived up to their expectations. When looking at the total sample, 23.0% is neither satisfied nor unsatisfied with their study experience since September 2020, and about equal proportions of the students are either satisfied or very satisfied (36.7%) or either unsatisfied or very unsatisfied (39.5%).

Comparing the newer students with those who started studying at a Dutch higher education institution before September 2020 shows that the respondents who started more recently are more often either satisfied or very satisfied with their study experience in the autumn semester (42.8%), compared to the students who started before September; only 28.9% of the latter group are either satisfied or very satisfied – a difference of 13.9 percentage points (see Figure 1). Accordingly, a majority of the ‘newer’ students indicate that they are either happy or very happy with their decision (52.2%) to start studying in September 2020, with a minority of 24.9% of these students either unhappy or very unhappy with this decision (see Figure 2). The finding that the newer students are generally happy with their decision might be partially explained by the fact that they cannot compare their current study experience with the pre-COVID situation and started the semester with expectations already adjusted to the pandemic situation.

In contrast, the international students who started before September 2020 experienced a sudden shift in March when COVID-19 arrived, while familiar with the normal study situation, one which they were mostly satisfied with. In fact, 57.1% of these students were either satisfied or very satisfied with their overall study experience prior to September 2020 (see Figure 3).

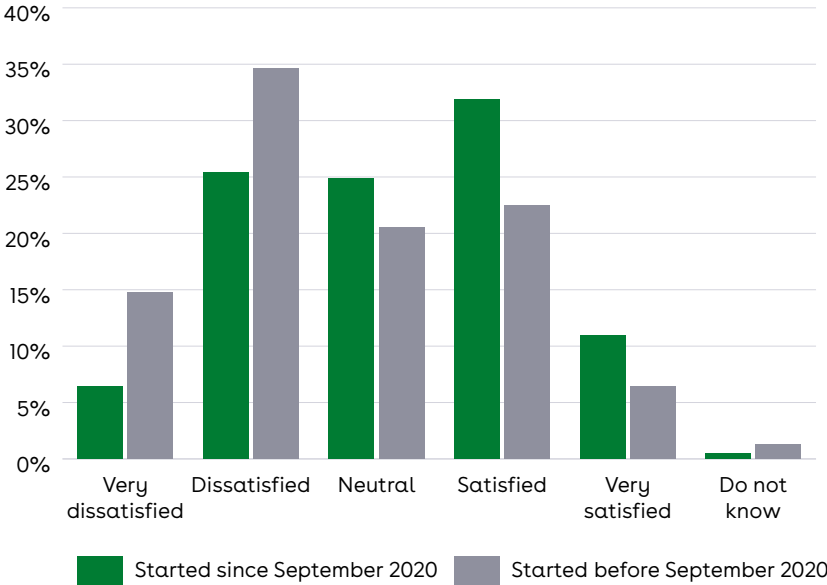
The difference between the students who began studying recently and those who began less recently is also reflected in their answers when asked about the extent to which the overall study experience at a Dutch higher education institution had lived up to their expectations at

the start of this academic year. Whereas a majority of the newer students indicated that their study experience was either according to or exceeding their expectations (54.2%), only 40.4% of the students who started prior to September 2020 felt the same (see Figure 4).

The final general question asked whether the Netherlands' handling of the COVID-19 pandemic, including its dealing with international students, affected the likelihood of the respondents to choose or recommend the Netherlands as a place to study in the future (see Figure 5). This question was only presented to the students who lived in the Netherlands for most of the 2020 autumn semester (N = 287). As revealed by Figure 5, the balance does not tip one way or the other: the option that was mostly chosen is 'neutral' (38.3%), while roughly the same number of respondents chose either 'less likely' or 'much less likely' (30.0%) as chose either 'more likely' or 'much more likely' (29.6%).

**Figure 1.** How the students rate their overall satisfaction with their study experience as a whole from September 2020 onwards. Comparison between students who started studying at a Dutch higher education institution since September 2020 (N = 201) and students who started earlier (N = 156)

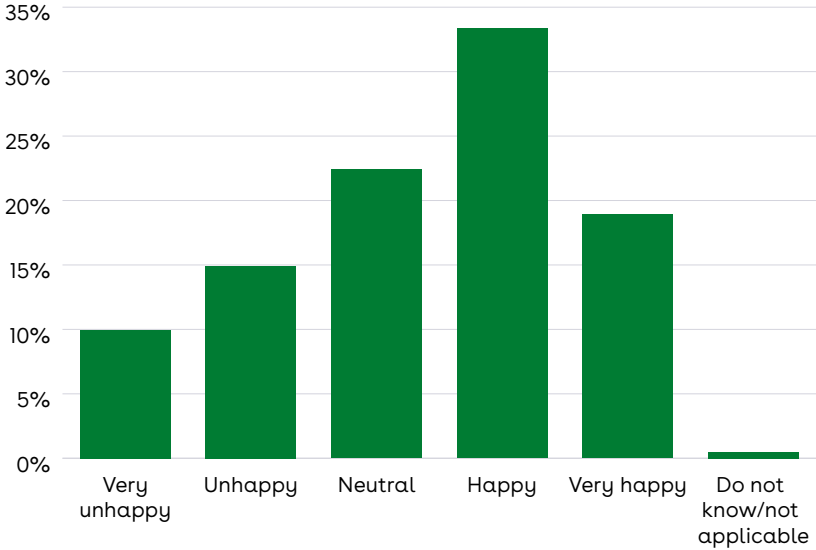
**How would you rate your overall satisfaction with your study experience as a whole from September 2020 onwards?**





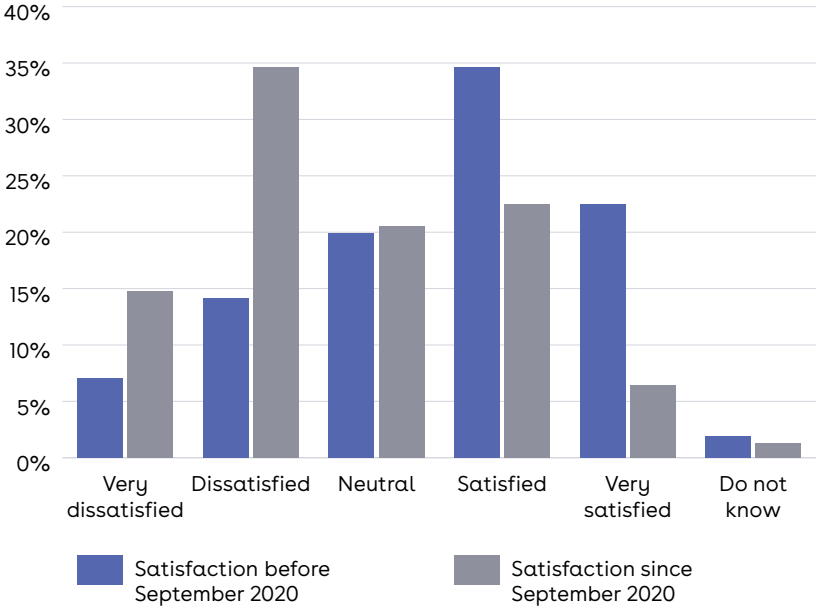
**Figure 2.** How happy the students are with their decision to start their studies in September 2020 (only students who started since September, N = 201)

**How happy are you with your decision to start your studies in September 2020?**



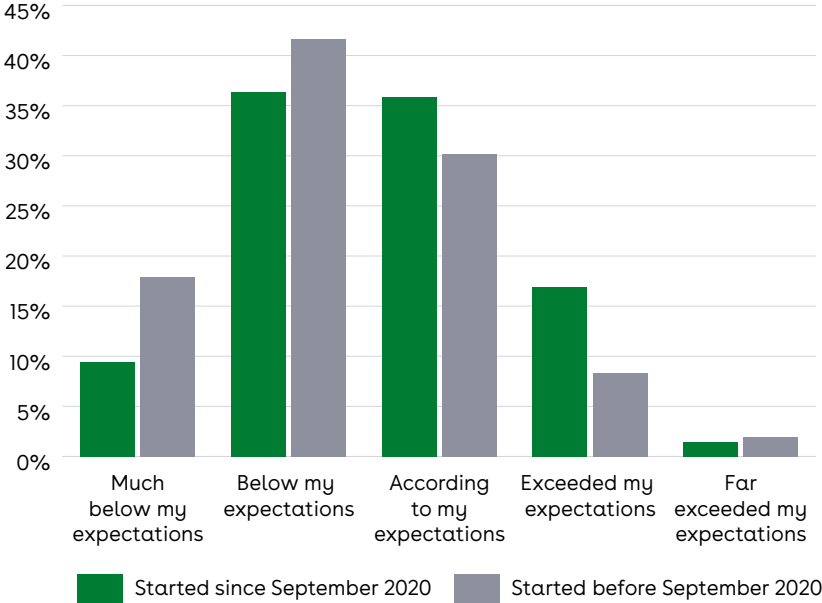
**Figure 3.** How the students who started before September 2020 (N = 156) rate their overall satisfaction with their study experience as a whole, both before and since September 2020

**How would you rate your overall satisfaction with your study experience as a whole before September 2020 and from September 2020 onwards?**



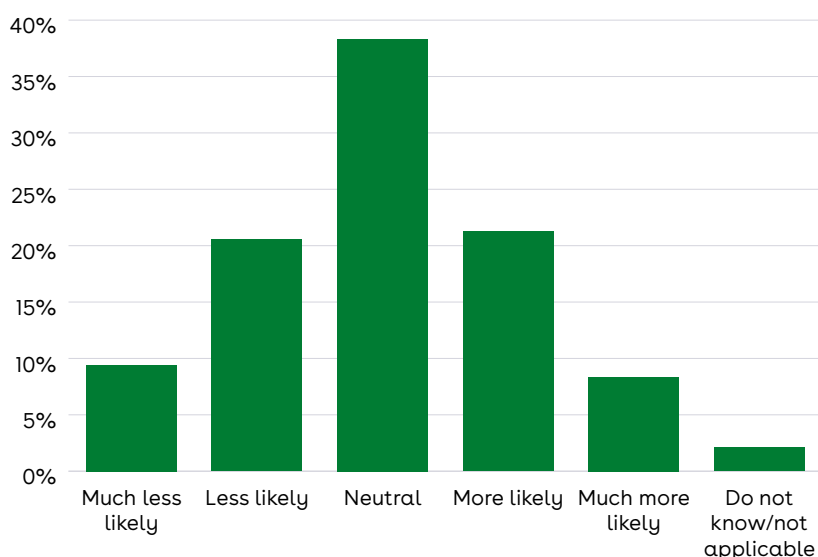
**Figure 4.** The extent to which the overall study experience at a Dutch higher education institution lived up to the expectations of students at the start of this academic year (2020-2021). Comparison between students who started studying at a Dutch higher education institution since September 2020 (N = 201) and students who started earlier (N = 156)

To what extent did the overall study experience at a Dutch higher education institution starting September 2020 live up to the expectations you had at the start of this academic year?



**Figure 5.** Students' answers to the question: 'Overall, has the Netherlands' handling of the COVID-19 pandemic, including its handling of international students, made you more or less likely to choose or recommend the Netherlands as a place to study in the future?' Only students who lived in the Netherlands last semester, N = 287

Overall, has the Netherlands' handling of the COVID-19 pandemic, including its handling of international students, made you more or less likely to choose or recommend the Netherlands as a place to study in the future?



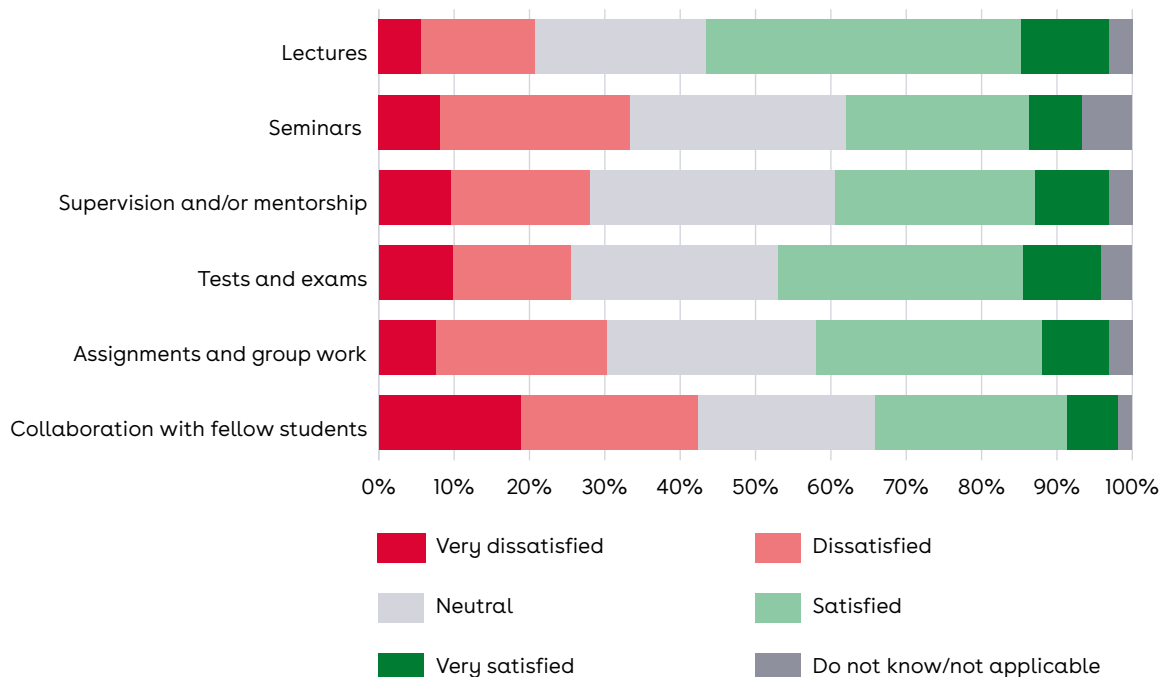
## 2.2 Learning experience

When asked about various aspects of their learning experience, respondents did not indicate significant satisfaction or dissatisfaction in any particular area, although their satisfaction with lectures is slightly higher compared to the other aspects, with the majority of respondents (53.5%) indicating being either satisfied or very satisfied with their lectures (see Figure 6). However, students' satisfaction with regard to collaboration with fellow students was slightly below average, with close to half of respondents (42.3%) being either dissatisfied or very dissatisfied. Respondents' satisfaction with tests and exams scored slightly higher than neutral, with only one in four students (25.5%) indicating they are either dissatisfied or very dissatisfied. This is interesting, given the recent debates in the Netherlands about online exam proctoring and concerns about students' privacy.

These results mirror the outcomes from i-graduate's *COVID-19 Response Barometer* (as reported by Tribal Group on 21 October 2020), which surveyed over 24,000 students in eleven countries. Globally speaking, it showed that satisfaction levels with lectures and tutorials were higher than with assignments and group work.

**Figure 6.** The extent to which the international students are satisfied with the following aspects of their learning experience from September 2020 onwards (all respondents, N = 357)

**To what extent are you satisfied with the following aspects of your learning experience from September 2020 onwards?**



### 2.3 Infrastructure and skills for studying from home

In this section, we analyse whether students have the conditions and facilities to study from home. Students indicate they have far better access to hardware (laptop, headphones, microphone, webcam) than to a quiet place to study. A quiet place to study scores lowest of all (see Figure 7). Only a third (33.6%) of students always have access to a quiet space. This result is similar for Dutch students, as evidenced by the report *Lieve Mark* (Dear Mark), produced by the S.O.S. in collaboration with the ISO, published in January 2021. This could warrant keeping (or making) libraries, large empty classrooms or other large spaces on campus available (for quiet study) as much as possible. A reliable internet connection and access to required software and programs is less problematic, with only a small minority indicating they rarely or never have access to these (5.9% and 6.4% respectively).

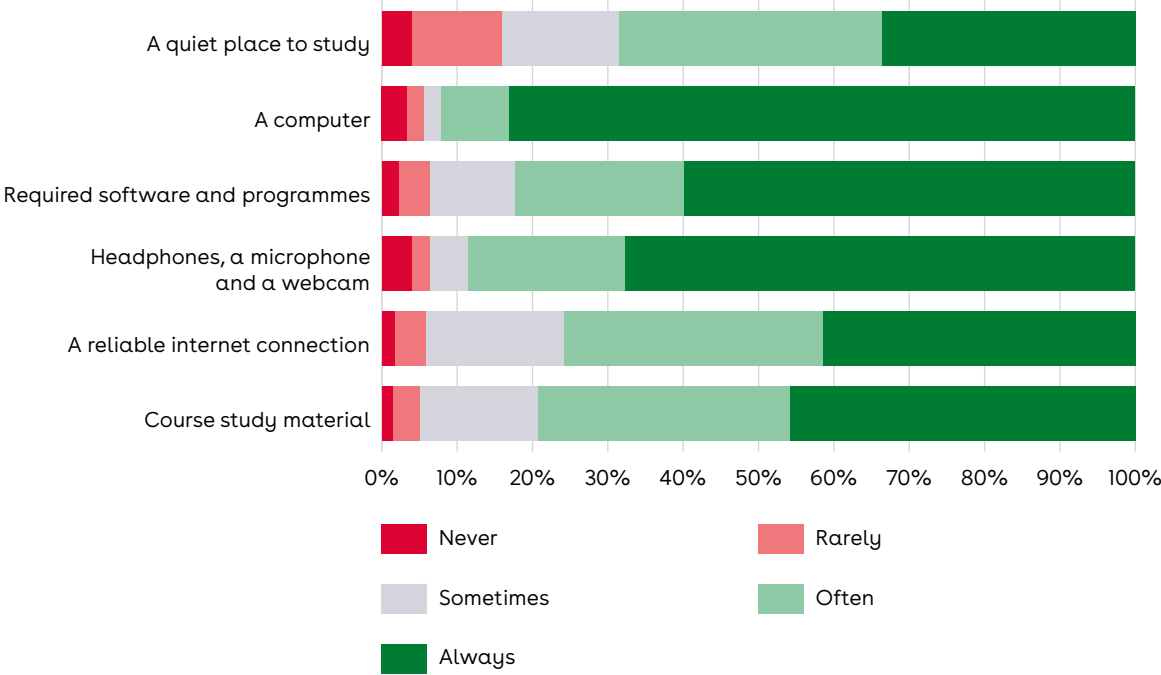
We also questioned the extent to which students feel confident in their computer skills, as these are essential in today's online and blended learning environments (see Figure 8). Students clearly feel most confident about using online communication platforms (email, messaging, etc.) and browsing online information, with approximately 65% strongly agreeing with the statement 'I feel confident in ...'. Although students feel less confident about using online teaching platforms (Brightspace, Blackboard, etc.), software and programs required for their studies, and online collaboration platforms (Zoom, Microsoft Teams, Skype, Kaltura, etc.), they still score themselves high, with their confidence in using the latter scoring the highest: on average they agree with the statement regarding online collaboration platforms.

Again, these results mirror international research outcomes. Aristovnik et al. (2020) also found that the respondents in their survey indicated they had far more access to a computer and office supplies (notebooks, pens, etc.) than to a quiet place to study. Similarly, respondents indicated they were most confident about using online communication platforms (email,

messaging, etc.) and browsing online information. As indicated in our Context section, it is important to note, however, that most of the respondents in this survey were domestic students (94.1%).

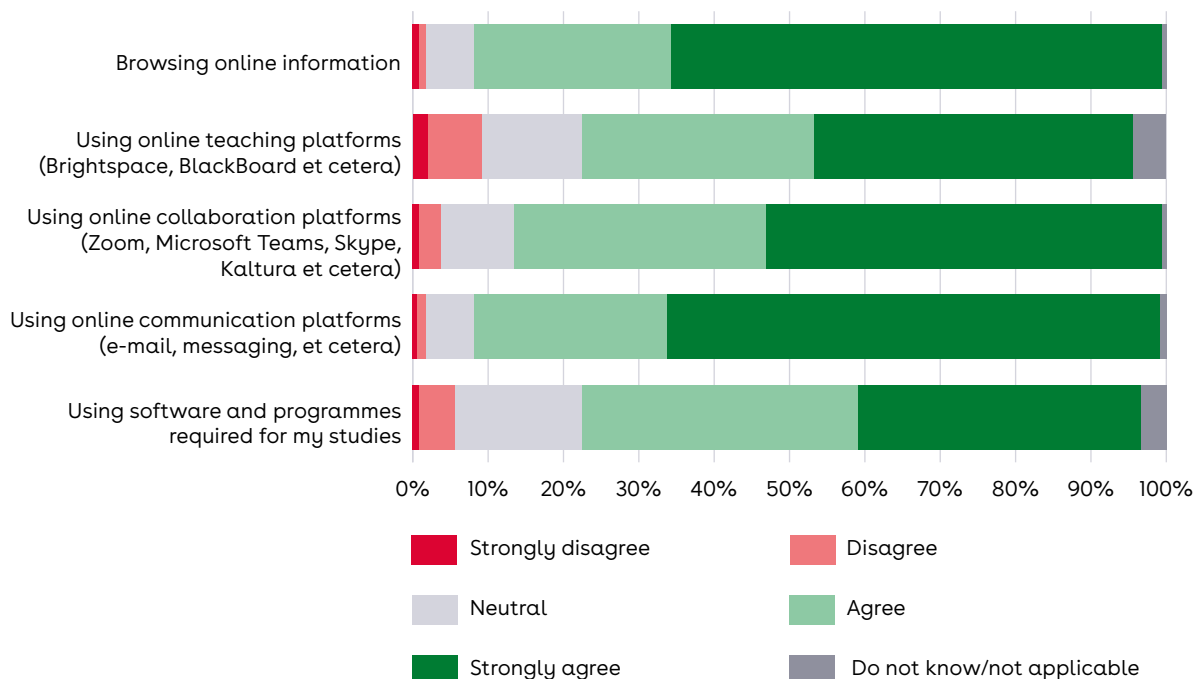
**Figure 7.** How often the students had access to the following (starting September 2020) (all respondents, N = 357)

**How often did you have access to the following starting September 2020?**



**Figure 8.** The extent to which the students agreed with the following statements about their computer skills (all respondents, N = 357)

### To what extent do you agree with the following statements about your computer skills. I am confident in...



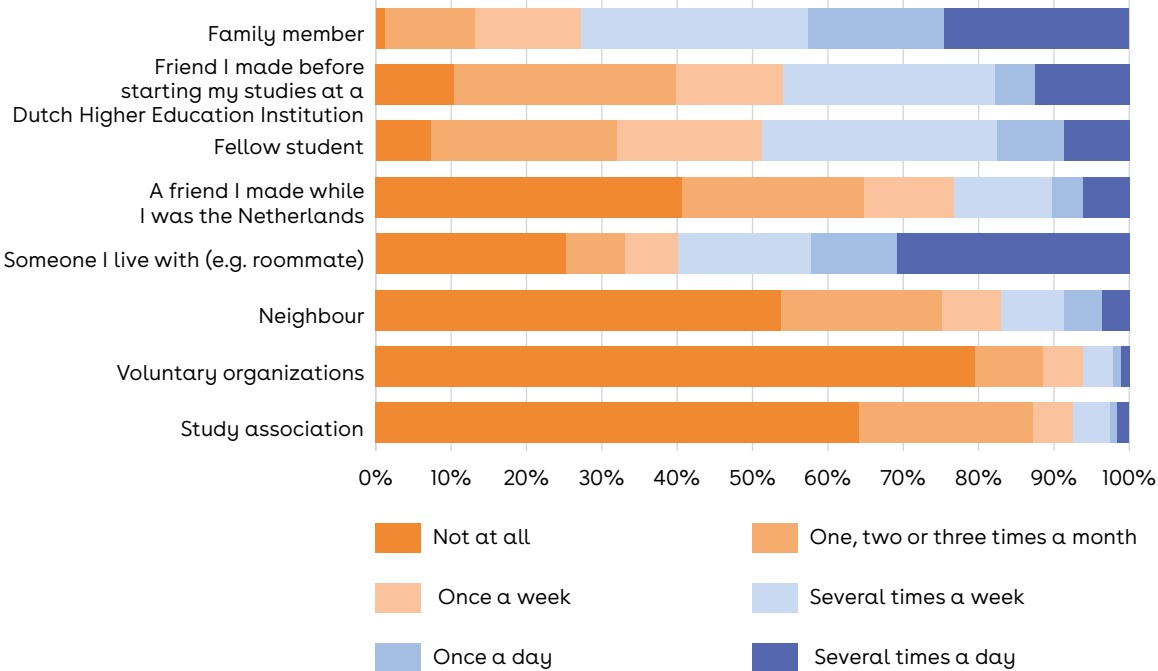
## 2.4 Social life

In this section, we analyse the social life of students. A large majority indicated being dissatisfied with their social life from September 2020 on (67.8% is either dissatisfied or very dissatisfied), with only 14.0% reporting being either satisfied or very satisfied with their social life (18.2% is neither satisfied nor dissatisfied). According to another study conducted just before the outbreak of the pandemic (Annual International Student Survey, 2019), 62% of the international students taking part in the study were either satisfied or very satisfied with their social life in the Netherlands. This difference between our findings and the findings of the aforementioned pre-COVID study may indicate that international students are less satisfied with their social life during the pandemic than before the pandemic. However, we should note that our sample differs in some aspects from the other study's (e.g. in the composition of EEA and non-EEA students).

In our study, we also examined how often students had contact with support networks during the pandemic, such as family and friends (see Figure 9). The majority had regular contact (at least several times a week) with family members (72.8% of respondents) and people they live with, such as roommates (59.9%). Slightly less than half of the students had regular contact with fellow students (48.7%) and friends they made before starting their studies (45.9%). Some 23.3% of the students had regular contact with friends they made in the Netherlands, while 17.1% of the students had regular contact with neighbours. Lastly, only a small percentage of students had regular contact with their study association (7.6%) or with voluntary organisations (6.0%).

**Figure 9.** How often the students have communicated with the following people/groups since September 2020 (either online or offline) (all respondents, N = 357)

**How often have you communicated with the following people/groups since September 2020 (either online or offline)?**

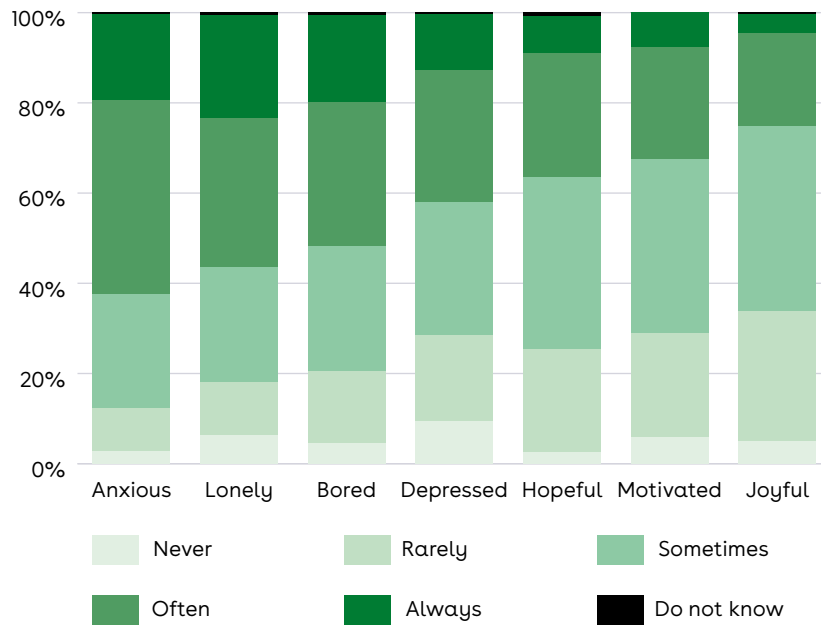


**2.5 Emotional life**

In this section, we analyse the emotional life of students. We asked students how often they experience negative emotions (i.e. anxious, bored, depressed) as well as positive emotions (i.e. hopeful, motivated, joyful). For the detailed results, see the bar chart below (Figure 10). More than half of the respondents often or always felt anxious (62.0%), lonely (55.8%), bored (51.2%), while slightly less than half of the respondents often or always felt depressed (41.8%). Some 35.9% of the respondents felt often or always hopeful, 32.4% motivated, and 24.7% joyful. According to another study concerning international students in the Netherlands conducted before the outbreak of the pandemic (Annual International Student Survey, 2019), the vast majority of respondents experienced very to ‘extremely much happiness’. Some 44% of the respondents experienced ‘very to extremely much stress’, while 40% experienced moderate to extreme psychological problems. Based on these differences between our findings and the findings of this pre-COVID study, we may conclude that, among international students, negative emotions have increased and positive emotions have declined during the pandemic. However, it should be noted that our sample differs in some aspects from this study (e.g. in the ratio between EEA students and non-EEA students).

**Figure 10.** The extent to which the students felt the following emotions while attending their classes and studying and preparing for their courses starting September 2020 (all respondents, N = 357)

**The extent to which the students felt the following emotions while attending classes, studying and preparing for their courses (since September 2020)**



**2.6 Concerns about (personal) circumstances**

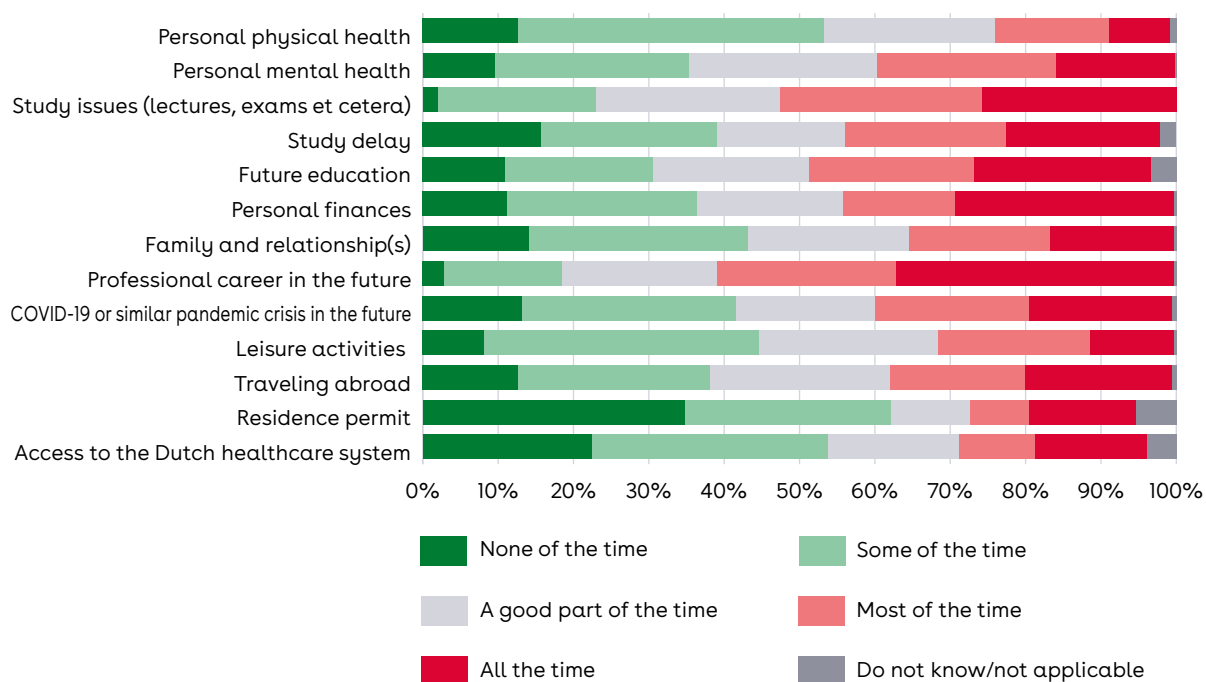
In the last part of the survey, the respondents were asked to indicate how often they worry about various (e.g. personal, financial) circumstances. The results of these questions can be found in the bar chart below (Figure 11). The respondents seem to worry most about their future professional career (68.8% indicated that they worry most or all the time about their future career). Study issues (lectures, seminars, practical work, exams, etc.) and future education complete the top 3 of worries. The respondents who participated in the COVID-19 Social Science Lab (Aristovnik et al., 2020: 13) mentioned earlier also worried the most about their future professional career (42.6% worried about this most or all the time), followed by study issues (40.2%).

Furthermore, the respondents in our survey worry the least about their residence permit (62.2% indicated that they do not worry at all or only some of the time about this). Personal physical health and access to the Dutch healthcare system complete the top 3 of least mentioned worries.



**Figure 11.** How often the international students worry about the following circumstances (all respondents, N = 357)

### How often do you worry about the following (personal) circumstances?



## 3. Comparing different groups of respondents

In this section, we examine whether respondents with different characteristics also differ in their responses in the survey. We divided our sample in groups based on several characteristics, including: their origin (EEA or not); their location (living in the Netherlands or not); the period they started their studies (before or after September 2020); the percentage of online classes they had (less than or more than 75%); the type of institution they attend (research university or university of applied sciences); their degree programme level (bachelor's or master's); and their field of study (technical education or not). This type of analysis allows us to zoom in on relevant group differences, and provide insight to readers with different areas of interest. For this analysis, we conducted Pearson chi-square tests, which show if there is a difference between two groups in the percentages reported. We regarded the difference as statistically significant when the p-value was below 0.05.

### 3.1 EEA students versus non-EEA students

Our sample consisted of 51 EEA students and 306 non-EEA students. The differences between these two groups were not statistically significant regarding satisfaction with their overall study experience. In particular, 71.4% of EEA students and 55.6% of non-EEA students were either satisfied or very satisfied with their overall study experience before September 2020. Regarding the period from September 2020 onwards, 41.2% of EEA students and 36.3% of non-EEA students were either satisfied or very satisfied. Some 63.6% of EEA students and 51.1% of non-EEA students indicated being either happy or very happy with their decision to start their studies in September 2020.

Even though EEA students did not differ from non-EEA students with regard to the questions mentioned above, the differences were statistically significant for some aspects of their social and emotional life, and their general (life) circumstances. In particular, 25.5% of EEA students were either satisfied or very satisfied with their social life, while for non-EEA students this percentage was just 11.8%. The percentage of EEA students in regular contact (at least several times a week) with fellow students and friends they made before starting their studies was higher than for non-EEA students. Feeling bored regularly (often or always) was more common among non-EEA students than among EEA students. Worrying regularly (at least a good part of the time) about their residence permit and access to the Dutch healthcare system was more common among non-EEA students than among EEA students.

**Non-EEA students were satisfied with their social life less often, had less contact with fellow students and friends, and felt bored and worried more often than EEA students.**

### **3.2 Students living in the Netherlands versus students living abroad**

We compared the responses of the 287 students living in the Netherlands with the responses of the 70 students living abroad during the 2020 autumn semester. More than half of both groups were either satisfied or very satisfied with their overall study experience before September (59.2% of students living in the Netherlands and 54.2% of students living abroad). Some 37.3% of students living in the Netherlands and 35.7% of students living abroad were either satisfied or very satisfied with their overall study experience from September onwards. Similarly, these two groups were equally happy with their decision to start their studies in September 2020 in both groups around 52.5% were either happy or very happy.

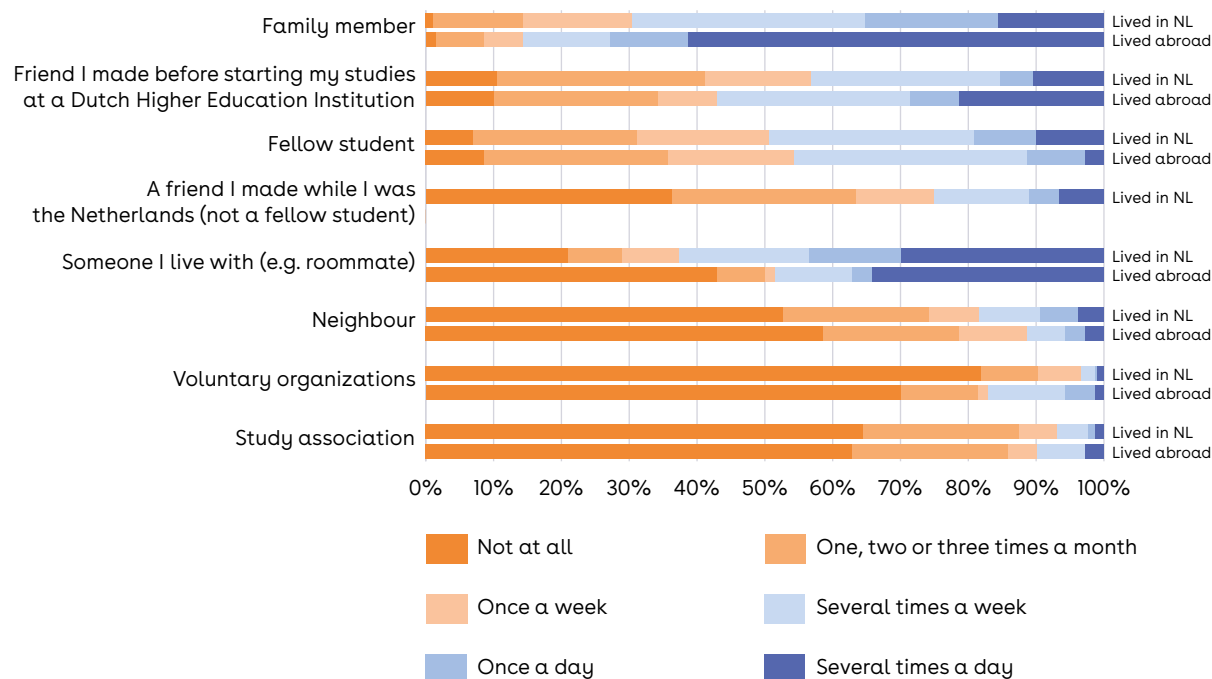
However, we found statistically significant differences between these two groups regarding some aspects of their social and emotional life, and general (life) circumstances. More of the students staying abroad had regular contact (more than several times a week) with family, friends they made before starting their studies and voluntary organisations, compared to students living in the Netherlands (see Figure 12). For the latter, it was more common to have regular contact with people they lived with, compared to students living abroad. As to their emotional life, students living in the Netherlands more often reported always feeling anxious and lonely than did students living abroad. Often or always feeling motivated was more common among students living abroad than among students living in the Netherlands. Worrying regularly (more than a good part of the time) about physical health, family and relationships, and leisure activities was more common among students living in the Netherlands than among students living abroad.

**Students living in the Netherlands had less contact with family and friends, felt worried, anxious and lonely more often, and felt motivated less often than students living abroad.**

**Figure 12.** How often the students living in the Netherlands (N = 287) or abroad (N = 70) last semester have communicated with the following people/groups since September 2020 (either online or offline)

### How often have you communicated with the following people/groups since September 2020 (either online or offline)?

Note: 'A friend that the students made while in the Netherlands' is only applicable to students who lived in the Netherlands most part of the 2020 autumn semester.



### 3.3 Students who started before 1 September 2020 versus students who started later

When comparing students who started their studies before September with students who started after 1 September (referred to as 'newer students'), we found a statistically significant difference in their satisfaction with their overall study experience in the autumn semester. Some 29.2% of students who started before September and 43% of newer students were either satisfied or very satisfied with their study experience from September onwards. More newer students were either satisfied or very satisfied with their lectures, seminars, exams and assignments than students who started their study before September. Some 54.2% of newer students answered that their study experience met or exceeded their expectations, while this percentage was 40.4% for the other group. Among the group of newer students, more students reported often or always having access to a quiet place to study, the required software, headphones, a microphone, webcam and course material, compared to students who started their studies before September. These results showed that the two groups experienced their study and access to infrastructure during the same semester in a different way, with the newer students generally more positive. A possible explanation for newer students being more positive in general could be that students who started before September needed to adapt to many changes.

Differences were also reflected in their emotions. A higher percentage of newer students reported often or always feeling hopeful, joyful or motivated, compared to the students who started before September. Negative emotions, such as often or always feeling bored, depressed or lonely were more prevalent among students who started before September.

Worrying at least a good part of the time about their personal mental health, study delay, future education, personal finances, future professional career and residence permit was also more common among students who started before September than among newer students.

**Compared to newer students, students who started before September were satisfied with their study experience in the autumn semester less often, had access to infrastructure less often and experienced positive emotions less often, while they experienced negative emotions and worried more often.**

### **3.4 Studying mostly online versus studying less online**

We compared the 273 students who had more than 75% of their classes online (referred to as 'studying mostly online') with the 84 students who had less than 75% of their classes online (referred to as 'studying less online'). The differences in the overall satisfaction between these two groups were not statistically significant: 58% of students studying mostly online and 60% of students studying less online were either satisfied or very satisfied with their overall study experience prior to September. However, the differences between the two groups were statistically significant with regard to their satisfaction with their overall study experience from September onwards. Some 33.9% of students studying mostly online and 47% of the students studying less online were either satisfied or very satisfied with their overall study experience from September onwards. There was no significant difference between how happy these two student groups were with their decision to start their studies at a Dutch higher education institution from September onwards: 50% of students studying mostly online and 60.4% of students studying less online responded that they were either happy or very happy with their decision to start their studies in September.

We found statistically significant differences in specific aspects of their satisfaction and the question of whether their study experience met their expectations. Fewer of the students studying mostly online were either satisfied or very satisfied with the supervision and exams, compared to the students studying less online. Some 45.1% of students studying mostly online said that their study experience either met or exceeded their expectations. This percentage was higher among students who studied less online (58.3%).

We also found statistically significant differences in some aspects of their social and emotional life and general life circumstances. Some 22.9% of students studying less online were either satisfied or very satisfied with their social life, while this percentage for those studying mostly online was just 11%. Having regular contact (more than several times a week) with fellow students, neighbours and study associations was more common among students studying less online than among those studying mostly online. Often or always feeling hopeful, joyful or motivated was more prevalent among students studying less online than among those studying mostly online. On the contrary, often or always feeling bored was more common among students studying mostly online. Lastly, worrying at least a good part of the time about study delay was more common among students studying mostly online.

**Compared to students studying less online, students studying mostly online were satisfied with their social life and their study experience from September onwards less often, had less contact with fellow students, experienced positive emotions less often, while experiencing negative emotions and worrying more often.**

### **3.5 Research university students versus university of applied sciences students**

We compared the 248 students studying at research universities with the 109 students studying at universities of applied sciences who participated in our survey. Some 63.9% of students studying at research universities and 49.1% of students studying at universities of applied sciences were either satisfied or very satisfied with their overall study experience prior to September. As for the period since September, 39.6% of students studying at research universities and 31.2% of students studying at universities of applied sciences were either satisfied or very satisfied with their overall study experience. Some 49.7% of research university students and 60.8% of students in universities of applied sciences were either happy or very happy with their decision to start their studies from September onwards. For all the questions mentioned above, the differences between these two groups were not statistically significant.

However, the differences between these two groups were statistically significant regarding their access to infrastructure, their contacts and worries. Compared to university of applied sciences students, there were more research university students with regular access (i.e. often or always) to a computer, the required software, headphones, a microphone, webcam and course material. Having regular contact (more than several times a week) with fellow students and study associations was more common among students at universities of applied sciences than among research university students. Compared to research university students, more students at universities of applied sciences worried at least a good part of the time about study delay, family and relationships, as well as about COVID-19 or a similar pandemic in the future.

**Compared to research university students, students at universities of applied sciences had access to infrastructure less often, had more contact with fellow students and worried more often.**

### **3.6 Bachelor's students versus master's students**

There were 145 bachelor's students and 212 master's students in the study. Regarding their satisfaction with the overall study experience prior to September and from September onwards, there were no statistically significant differences between the two groups. Some 55.4% of bachelor's students and 62% of master's students were either satisfied or very satisfied with their overall study experience before September. Similarly, 40% of bachelor's students and 35% of master's students were either satisfied or very satisfied with their overall study experience from September onwards. However, there were statistically significant differences between the two groups regarding their happiness with their decision to start their studies in September: 67.7% of bachelor's students were either happy or very happy, while for master's students this percentage was 45.7%.

We found some other statistically significant differences between the two groups in terms of their satisfaction with lectures, access to required software, confidence browsing online, social life and worries. More master's students were either satisfied or very satisfied with the lectures than bachelor's students. Often or always having access to required software was more common among master's students than among bachelor's students. We also found that more master's students either agreed or strongly agreed that they felt confident in browsing online for information than did bachelor's students. However, compared to master's students, there were more bachelor's students who were either satisfied or very satisfied with their social life. Having regular contact (more than several times a week) with fellow students, friends they made before starting their studies, friends they made in the Netherlands, voluntary organisations and study associations was more common among bachelor's students than

among master's students. Lastly, the percentage of master's students worrying about their future education and access to the Dutch healthcare system was higher than the percentage of bachelor's students worrying about this.

**Master's students were satisfied with lectures, confident about their IT skills and had access to software more often than were bachelor's students. However, they were happy with their decision and satisfied with their social life less often than bachelor's students, and had less contact with fellow students and friends, while worrying more often.**

### **3.7 Students in a technical field of study versus students in a non-technical one**

Another comparison we made was between the 93 students in a technical field of study (studying engineering and science) and the 252 students in a non-technical field of study. This comparison is important because of recent national policy developments regarding key technologies and the high demand in the Netherlands for international talent with a technical background, due to Dutch labour market shortages. Some 65.1% of students in a technical field of study and 54.6% of students in a non-technical field of study were satisfied or very satisfied with their overall study experience prior to September. Some 37.4% of students in a technical field of study versus 35.5% of the students in a non-technical field of study were satisfied or very satisfied with their overall study experience since September. Some 63% of students in a technical field and 49% of students in a non-technical field were either happy or very happy with their decision to start their studies in September. These differences in percentages were not statistically significant.

However, we found statistically significant differences in their satisfaction with assignments. Compared to students in a non-technical field of study, more students in a technical field of study were either satisfied or very satisfied with their assignments. Feeling confident with using online teaching platforms was also more common among students in a technical field of study. However, having regular contact (more than several times a week) with fellow students, with friends they made before starting their studies or with study associations was more common among students in a non-technical field of study than among students in a technical one.

**Compared to students in a non-technical field of study, students in a technical field of study were more satisfied with assignments and felt more confident in dealing with online platforms, but had less regular contacts with fellow students and friends.**

## **4. Logistic regression analysis**

In the last part of this report, we show the results of a logistic regression analysis that was performed to ascertain the effects of several independent variables on the likelihood that respondents are satisfied with their study experience as a whole.

### **4.1 Variables included in analysis**

We decided to include 15 predictor (independent) variables in the model, including 2 control variables.

The predictors 'satisfaction with lectures', and 'satisfaction with supervision and/or mentorship' are included because it follows from a study by Thomas and Galambos (2004: 256) that quality of instruction and academic advising services are both positively related with the satisfaction with the quality of education.

The aforementioned study by Aristovnik et al. (2020: 18), investigating the impacts of the COVID-19 pandemic on the life of higher education students, found that concerns about study issues (lectures, seminars and practical work) have a negative and significant effect on the students' satisfaction with the role of their university during the COVID-19 pandemic. This variable was therefore also included in this study.

The same study by Aristovnik et al. also found that emotional life and 'boredom' were other important drivers of student satisfaction with the role of their university during the pandemic (Aristovnik, 2020: 17). This is why we also included 'satisfaction with social life' and how the students scored on the Mental Health Index.

We also included the students' confidence in computer skills as a predictor variable, since Butz et al. (2015) found that students enrolled in online courses show a significantly higher level of technology-related fear, helplessness and anger than those who receive face-to-face teaching. Our expectation is that students with more confidence in their computer skills will have found the switch to online education less challenging and are thus feeling more satisfied with their study experience.

All other variables (apart from the control variables age and gender) correspond to the comparisons we made in section 3 of this report. With this regression, we can demonstrate whether these variables increase the probability of overall satisfaction with the study experience, while keeping other variables in the model constant.

## 4.2 Logistic regression methodology

In the following section, the method for this analysis is substantiated and an overview is given of the variables.

### Method of analysis

Binary logistic regression was chosen as the method of analysis, with the overall satisfaction of the students' study experience as whole (from September 2020 onwards) as the dichotomous dependent variable. Binary logistic regression was chosen because: i) the values of the dependent variable are ordinal (a Likert scale ranging between very dissatisfied and very satisfied), which means that linear regression (which requires a continuous dependent variable) is not possible; and ii) the interpretation of the models is with this method much clearer than with ordinal logistic regression.

Of the 357 respondents, 42 were not included in the analysis because they had missing data (e.g. they indicated that a question was not applicable for them) for one or more of the relevant variables.

### Dependent variable

The ordinal answer options (very dissatisfied, dissatisfied, neutral, satisfied, very satisfied) to the question 'How would you rate your overall satisfaction with your study experience as a whole from September 2020 onwards?' were recoded to a dummy variable. The dependent variable now has a value of '1' if a respondent was either satisfied or very satisfied. All other options were given the value '0'.

### Independent variables

Table A1 in the appendix provides an overview of the questions and answer options (recoded where necessary), while Table A2 gives an overview of the descriptive statistics (means, standard deviations, minimum and maximum) for both the dependent variable and the independent variables. A few variables require further explanation, which can also be found in the appendix.

### 4.3 Results of the logistic regression

After checking the assumptions for logistic regression (see appendix), the regression was performed. As Table 1 shows, 6 of the 15 variables are significant at the level of .05 or less. Higher satisfaction with lectures is significantly and positively related with the students' overall satisfaction with their study experience during the pandemic. More specifically, a one-unit increase in satisfaction with lectures (e.g. from 'satisfied' to 'very satisfied') would increase the probability of overall satisfaction with the study experience by 131.5%, while keeping other variables in the model constant.

A positive and significant influence is also observed for satisfaction with supervision and/or mentorship, and collaboration with fellow students (although the strength of these associations is lower than compared to satisfaction with lectures). In addition, students who attend a research university are 2.52 times more likely to be either satisfied or very satisfied with their study experience than students attending a university of applied sciences.

Lastly, emotional and social life are also identified as important drivers of student satisfaction with their study experience. Respondents with low levels of anxiety and depression symptoms are 2.68 times more likely to be either satisfied or very satisfied with their study experience than those with moderate to high symptoms. In addition, international students who are more satisfied with their social life are also more satisfied with their study experience as a whole.

The regression coefficients for all other predictors (e.g. whether the student is an EEA student, when they started their studies and from which location they pursued their studies) are not significant, implying that these variables are not important determinants for the students' satisfaction with their study experience.



**Table 1.** Binary logistic regression for factors influencing the students' satisfaction with their study experience during the COVID-19 pandemic

Name variable	B	SE	Sig.	OR
Constant	-9.224	2.181	0.000	-
Satisfaction lectures	0.839***	0.207	0.000	2.315
Satisfaction supervision and/or mentorship	0.555**	0.175	0.002	1.743
Satisfaction with collaboration with fellow students	0.336*	0.146	0.022	1.399
Satisfaction social life	0.512**	0.167	0.002	1.669
Worries about study issues	0.134	0.147	0.361	1.143
Low anxiety and depression symptom levels	0.986**	0.328	0.003	2.681
Confidence computer skills	-0.278	0.284	0.328	0.757
EU student	0.007	0.477	0.988	1.007
Attending research university	0.924*	0.385	0.016	2.518
Master student	-0.735	0.471	0.119	0.479
Percentage online classes	0.054	0.219	0.804	1.056
Started September 2020	0.333	0.333	0.318	1.395
Lived in the Netherlands	0.560	0.401	0.163	1.751
Female	-0.204	0.325	0.529	0.815
Age	0.046	0.052	0.373	1.048
$\chi^2$	138.710			
df	15			
-2 log likelihood	277.947			
Observations (N)	315			
Nagelkerke R <sup>2</sup>	.486			

Note: B = regression coefficient; SE = standard error; OR = odds ratio.

Significance: \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ .

## Conclusions and recommendations

Overall, our survey shows that international students at Dutch higher education institutions are faring as can be expected during the COVID-19 pandemic. Students who started since September 2020 are satisfied with their study experience in the autumn semester more often than students who started prior to September 2020. The likely reason for this is that the 'newer' students did not experience the pre-COVID-19 situation and started the semester with their expectations already adjusted to the pandemic situation.

In general, international students face similar issues to the ones facing Dutch students when it comes to facilities required to study from home, as well as with regard to their social and emotional well-being (when compared with the results in the report entitled *Lieve Mark*, produced by S.O.S. in collaboration with the ISO, 2021). Many international students do not always have a quiet place to study, and substantial numbers of them are struggling with social and emotional problems.

There is significant variation, however, between EEA students and non-EEA students, as well as between students who lived in the Netherlands and those who lived abroad during the 2020 autumn semester. Non-EEA students and students living abroad score worse on satisfaction with their overall study experience and on some aspects of their social life, emotional life and general (life) circumstances. These groups could require extra attention in the coming months.

Assuming that 'abroad' will usually refer to students living in their home country, or at least in the same situation as prior to studying at a Dutch university, these results appear to indicate that with regard to their social and emotional life and general well-being, it is advantageous for international students to be in their home country during the COVID-19 pandemic.

Emotional and social life are also identified as important drivers of student satisfaction with their study experience. Students with low anxiety and depression symptoms levels are more likely to be satisfied with their study experience than those with moderate to severe symptoms. And international students who are more satisfied with their social life are also more satisfied with their study experience as a whole.

Higher satisfaction with lectures is also significantly and positively related with the students' overall satisfaction with their study experience since September 2020. A positive and significant influence is also observed for satisfaction with supervision and/or mentorship, and for collaboration with fellow students. Dutch higher education institutions could consider focusing their efforts especially on these aspects going forward. This calls for creating forms of offline and in-person educational engagement as much as possible, since this is likely to generate an immediate positive return in student satisfaction.

On a practical level, many international students do not always have a quiet place to study. This could be accommodated by extending the opening hours of libraries or creating other easily accessible spaces to study.

The various social, emotional and practical concerns of international students appear to mirror the concerns of Dutch students. This means that Dutch higher education institutions can align their response strategies in providing additional services for students, wherever possible. The most important thing is to pay specific attention to the group experiencing difficulties in their social and emotional life, as this is often directly related to the overall study experience and results.

Almost a year into the COVID-19 pandemic, it is clear that the impact on international students in the Dutch higher education sector is significant. There are short-term problems, such as greatly increased travel restrictions, as well as longer-term impacts, such as an enduring shift to online education predicted by many observers. It will be important to keep track of and learn more about these experiences, in order to support an optimal study experience in the Netherlands for international students, adequately responding to the challenges that COVID-19 has created.

Our reports on the impact of COVID-19 on international students studying at Dutch higher education institutions show that the following areas - in any case - will require more research and monitoring of students' experiences. First, we need to know more about the pros and cons of online education versus offline education, and how these impact educational outcomes, certainly if online education does indeed remain more prominent in the post-COVID-19 world of education. Second, what can be done to address students' social and emotional problems caused by lasting changes in the way education is provided? Third, how does a study experience impacted by COVID-19 influence the stay rate in the Netherlands? And finally, where does the impact of COVID-19 on Dutch and international students converge, and where is it significantly different? Nuffic will continue to contribute to exploring these and related questions in support of the Dutch higher education sector and its students.

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# Appendix

## Limitations

In section 3 of this report, in which different groups are compared, the sample size was small in some comparisons (e.g. there were only 51 EEA students in our sample). This limits the possibilities to compare responses between groups, so caution is required when extrapolating such comparisons to the total population. However, according to conventional standards, our sample size did allow for statistically reliable conclusions. Therefore, we believe that this study still offers a good indication of differences between groups.

## Research justification for logistic regression analysis

In the following section, the development of the analysis is discussed in more detail and the table with the logistic regression analysis is further explained.

### Further explanation independent variables

A few variables require some further explanation. For the variable 'low anxiety and depression symptom levels', the 5-item Mental Health Index (MHI-5) was used. This index consists of the following five questions. Over the last four weeks: (i) How often have you felt so down in the dumps that nothing could cheer you up? (ii) How often have you felt downhearted and blue? (iii) How often have you been a happy person? (iv) How often have you been a very nervous person? and (v) How often have you felt calm and peaceful?

Each question has five possible responses, ranging from 0 = 'none of the time' to 4 = 'all the time'. After recoding (reversing) the negatively formulated items (i.e. questions i, ii and iv), the total scores were computed by multiplying the total score by 5, which led to a score ranging from 0 to 100. Lower scores indicate higher symptom levels. The variable was then made into a dummy variable with a cut-off point of <60 to identify the students with moderate to high anxiety and depression levels (see also Van der Velden et al., 2020 & Driessen, 2011).

Furthermore, for the variable 'confidence in computer skills', the average score was calculated for the 5 questions that asked the respondents about their confidence in several computer skills (e.g. browsing online information). Lastly, the scores for the variable 'percentage online classes', was reversed, with higher scores meaning higher percentages of online classes.

### Checking the assumptions for logistic regression

Before the logistic regression was performed, bivariate correlations were performed for all independent variables to examine the interrelationships (see Table A3 for the correlation matrix). Unsurprisingly, there is a high degree of correlation (of .615) between age and the respondent being a master's student (all other combinations had either a moderate or low degree of correlation). However, it was later established that there is nevertheless no multicollinearity between the independent variables (i.e. there is no high correlation between the independent variables). In this model, the VIF values vary between 1.050 and 2.136, which is much lower than the recommended maximum of 5 described by Kutner et al. (2005). The tolerance values are also high (varying between .658 and .952), confirming the absence of multicollinearity. This is one of the assumptions of logistic regression. Other assumptions have

also been met. The dependent variable is binary, the observations are independent of each other (i.e. observations are not from repeated measurements or matched data), and there is a linear relationship between the continuous independent variable (age) and the logit transformation of the dependent variable.

## Results of the logistic regression

The logistic regression model (see Table x) correctly classified 81.6% of the cases, accounting for 48.6% of the explained variance (Nagelkerke  $R^2$ ). This means that this model explains 48.6% of the variance in the students' satisfaction with their study experience and that the remaining 51.4% percent must be explained by other variables and random errors. The analysis was also significant:  $\chi^2(15) = 138.710$ ,  $p < .0001$ , while the Hosmer and Lemeshow Test is not significant ( $p = .188$ ), further indicating that it is a good model.

**Table A1. Description of variables**

Variable	Variable description
<b>Dependent variable</b>	
Satisfaction study experience	Dummy variable, students' overall satisfaction with their study experience as a whole from September 2020 onwards (0 = very dissatisfied, dissatisfied or neutral, =1 satisfied or very satisfied)
<b>Independent variables</b>	
Satisfaction lectures	Students' satisfaction with their lectures from September 2020 onwards (1 = very dissatisfied, 5 = very satisfied)
Satisfaction supervision and/or mentorship	Students' satisfaction with their supervision and/or mentorship from September 2020 onwards (1 = very dissatisfied, 5 = very satisfied)
Collaboration with fellow students	Students' satisfaction with collaboration with fellow students from September 2020 onwards (1 = very dissatisfied, 5 = very satisfied)
Satisfaction social life	Students' overall satisfaction with their social life starting September 2020 (0 = very dissatisfied, 4 = very satisfied)
Worries about study issues	How often a student worries about study issues (1 = none of the time, 2 = some of the time, 3 = a good part of the time, 4 = most of the time, 5 = all the time)
Low anxiety and depression symptom levels	Dummy variable, indicating students' mental health during the four weeks prior to filling in the survey, based on the 5-item Mental Health Index (MHI-5). Low scores reflect higher anxiety and depression symptom levels. (score <60 = moderate to high anxiety and depression symptom levels, score $\geq 60$ = low anxiety and depression symptom levels, cf. Driessen, 2011)
Confidence in computer skills	Students' confidence in computer skills. Calculated average of the following 5 aspects: browsing online information, using online teaching platforms (e.g. Brightspace), using online collaboration platforms (e.g. Zoom), using online communication platforms, and using software and programmes required for their studies. (1 = very low confidence, 5 = very high confidence)
EEA student	Dummy variable indicating whether the student has a European Economic Area (EEA) nationality (The EEA includes all EU countries and also Iceland, Liechtenstein, and Norway) (0 = not an EEA student, 1 = EEA student)
Attending research university	Dummy variable indicating whether the student is attending a university of applied sciences or a research university (0 = university of applied sciences, 1 = research university)
Master student	Dummy variable indicating whether the student is currently a master student (0 = not a master student, 1 = master student)
Percentage online classes	Students' indication of which percentage of their classes were approximately online starting September 2020 (1 = between 0% and 25%, 2 = between 25% and 50%, 3 = between 50% and 75%, 4 = between 75% and 100%)
Started September 2020	Dummy variable, indicating whether the student started studying at a Dutch higher education institution before or after September 2020 (0 = started before 1 September 2020, 1 = Started 1 September 2020 or later)
Lived in the Netherlands	Dummy variable indicating whether the student pursued (the most part of) their studies in the Netherlands or elsewhere (0 = a country other than the Netherlands, 1 = The Netherlands)
<b>Control variables</b>	
Female	Dummy variable indicating whether the student identifies as female (0 = male, 1 = female)
Age	Students' age in years

**Table A2. Descriptive statistics of dependent variable and independent variables (N=315)**

Name variable	Mean	Standaard deviation (SD)	Min	Max
<b>Dependent variable</b>				
Satisfaction study experience	.370	.484	0	1
<b>Independent variables</b>				
Satisfaction lectures	3.40	1.046	1	5
Satisfaction supervision and/or mentorship	3.09	1.098	1	5
Satisfaction with collaboration with fellow students	2.77	1.190	1	5
Satisfaction social life	2.18	1.078	1	5
Worries about study issues	3.57	1.139	1	5
Low anxiety and depression symptom levels	.450	.499	0	1
Confidence computer skills	4.34	.654	1	5
EU student	.140	.347	0	1
Attending research university	.690	.462	0	1
Master student	.590	.493	0	1
Percentage online classes	3.64	.746	1	4
Started September 2020	.590	.493	0	1
Lived in the Netherlands	.810	.393	0	1
<b>Control variables</b>				
Female	.640	.479	0	1
Age	23.390	4.131	17	44

**Table A3. Correlation matrix of the predictor variables**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 Satisfaction lectures	--														
2 Satisfaction supervision and/or mentorship	0.456 ***	--													
3 Satisfaction with collaboration with fellow students	0.319 ***	0.360 ***	--												
4 Satisfaction social life	0.388 ***	0.325 ***	0.445 ***	--											
5 Worries about study issues	-0.159 **	-0.223 ***	-0.153 **	-0.159 **	--										
6 Low anxiety and depression symptom levels	.243 ***	.179**	.202 ***	.321 ***	-.265 ***	--									
7 Confidence computer skills	.333 ***	.243 ***	.239 ***	.217 ***	-.184 ***	.137 *	--								
8 EU student	0.021	0.016	0.049	0.060	-0.064	0.037	0.054	--							
9 Attending research university	0.144 *	0.043 *	-0.080	-0.035	-0.126 *	-0.013	0.024	-0.088	--						
10 Master student	0.148 **	-0.012	-0.111 *	-0.123 *	0.067	0.013	0.103	-0.146 *	0.307 ***	--					
11 Percentage online classes	-0.055	-0.138 *	-0.060	-0.108	0.108	-.148 **	-0.002	-0.013	0.119 *	0.086	--				
12 Started september 2020	0.185 **	0.070	0.046	0.093	0.022	.182 ***	0.041	-0.109	0.167 **	0.267 ***	0.000	--			
13 Lived in the Netherlands	-0.062	-0.055	-0.007	-0.039	0.150 **	-0.077	-0.039	-0.038	0.009	0.119 *	-0.192 **	-0.045	--		
14 Female	-0.020	0.056	0.015	-0.103	0.033	-0.069	-0.070	.127 **	-0.036	-.111 *	0.031	-0.057	-0.023	--	
15 Age	0.025	0.031	0.004	-0.059	0.109	0.109	0.036	-0.087	0.037	.615 ***	-0.003	0.086	.146 **	-.119 *	--

Correlation is significant at \*  $p < 0.05$ . \*\*  $p < 0.01$ . \*\*\*  $p < 0.001$  (two-tailed)



# Colophon

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