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The Everyday Use of ICT in Norwegian Flexible Education

Wenche M. Rønning,

Lifelong Learning Research Centre
The Norwegian University of Science and Technology (NTNU)
Trondheim
Email: wenche.m.ronning@svt.ntnu.no

Gunnar Grepperud

Centre for Further and Continuing Education
University of Tromsø
Email: Gunnar.Grepperud@uvett.uit.no

Abstract

Much of what we have learned about the use of ICT in teaching and other educational settings is based on limited case studies which primarily serve as examples. We know relatively little about how ICT is used on an everyday basis, particularly in higher education. A comprehensive national survey of adult flexible students' learning situation helps to throw light on some aspects of this. The survey was carried out in 2004-05. The database includes 1477 respondents from a total of 74 "classes", all following flexible higher education courses of a duration from ½ year to 4 years. The survey shows that Internet access is generally good, but clear disparities are shown for example between different occupational groups. Our results also show that in the course of the studies, simple basic functions are those primarily used by the students. Internet plays a less dominant role than expected as a channel of communication between students, or between students and their teachers.

ICT in flexible education and everyday life

Since the late 1980's the predominant model in flexible higher education in Norway, as in the other Nordic countries, has been a combination of extensive self-study (reading curriculum, writing essays etc.), plenary sessions and the use of ICT. This is also described as "blended learning" (Grepperud 2005).

During this period ICT has come to be integrated in flexible education. But until a few years ago, when advertising flexible studies at Norwegian universities and colleges it was common to stress that "access to PC/Internet is a requirement". Today, this stipulation is rarely found, it being taken for granted that digital media are an integral part of flexible study programmes.

Two trends illustrate this change:

i) ICT is becoming an integral part of everyday life. The technology is now an essential requirement in relation to our work, competence development and

leisure-time activities. It is also increasingly essential for using various public and private services. How, and to what extent, people make use of the PC and Internet varies. National surveys show, for example, that men are more active users than women, younger people more active than their elders and that women are more strategic in their use. Both scope and type of use are related to educational background and income level (SSB 2005; Rønning et al 2005, Tønseth et al 2006)

ii) Parallel to this development, Norwegian higher education has given high priority to the use of ICT, both on and off campus. This has brought about new ways of organizing teaching, while research and the use of ICT have encouraged the academic staff to take an interest in flexible education (Grepperud, Støkken & Toska 2000).

What do we know about the use of ICT among adults following flexible education programmes in Norway?

For some years, the implementation and use of ICT in education at all levels has been a major priority of educational policy. A number of studies (Erstad 2006, Krumsvik 2006) reveal high expectations and ambitions in regard to the role of ICT in future educational contexts. This has resulted in various research and development programmes at all levels of the educational system.

Our existing documentation on ICT, teaching and learning stems primarily from such *extraordinary* initiatives, as evidenced for example through various reports published by Norway Opening Universities[1] (e.g. Alexandersen et al 2002). Although this provides us with essential facts about ICT in teaching and learning, we know less about its *ordinary*, routine use, especially in higher education. Our knowledge is sparse both concerning how educational institutions are organized in this respect, and how students utilize and experience ICT as a tool. In other words, we know a great deal about the possibilities and limitations of ICT, but relatively little about how, and to what extent, ICT is integrated on an everyday basis in higher education. In other words, more research is required. Our present base of knowledge is insufficient and is tainted by investigations that are lacking in rigour and methodological quality. For instance, a typical investigation of the digital status of higher education in Norway is carried out by interviewing a few students on the matter (Arneberg et al 2005). The empirical basis does not have the quality to allow generalisation.

Research project "The Adult Flexible Student"- aims and method

First, we shall briefly describe the aim of the research project "The Adult Flexible Student". This study addresses the question of how education is integrated in modern life in general and investigates the extent to which part-time education is combinable with[1] occupational duties and family life. The learning situation for adult flexible students is a phenomenon embracing more than the relationship between student and educational institution. This naturally applies to ordinary students as well, but "flexible" students are distinguished by having limited contact with their campus and with the academic staff. It is obvious that off-campus arenas are highly significant in relation to how their learning situation is organized. The aim of the survey was to give some answers to what the implications are for the individual student and how and why their learning situations vary. How diverse is this student group and what is the impact of various family, work and leisure-time factors on their study situation?

Among adults following flexible studies in Norwegian higher education in 2004, 1477 students answered a series of questions covering 5 thematic areas:

- Background information
- Work, home and leisure-time
- Course of study and study situation
- Learning strategies
- Learning styles

The procedure for collecting data was rigorous and labour-intensive. Including preparations, it took 1 year, but in return we succeeded in obtaining a response rate of 86%. In agreement with our selected academic institutions, the questionnaire was distributed at 74 plenary class sessions, including 40 different subject areas. About half the respondents were following professional training courses in health and social care or teaching (Grepperud et al 2006, p. 6-9).

The sampling procedure taken into account, it is fair to say that this sample of students is representative of the flexible student population in Norwegian higher education (Iversen 2004; Grepperud 2005). The respondents consist of 78 % women and 22 % men. The average age is 39 years (range 20-67), 85 % are in full or part time employment. All the students have been following courses for more than one term, 90 % are half-way or more through their course programme, and 30 % are in their 3rd or 4th year of study. Almost half the students are first-time students in higher education, and half of these in turn are "informal competence" students i.e. do not fill the ordinary requirements for access to higher education. This category is over-represented in our survey, as in fact was our intention.

One particular section of the survey deals with how, and to what extent, adult students use ICT in their studies. This is a smaller part of the study, but three important issues were raised:

I. What is the status of access to PC/Internet among flexible students in higher education?
II. How are PC/Internet functions used in their education?
III. How is ICT used in communication and contact between students and teachers, when they are off-campus?

These questions were designed to give an overview of the frequency and patterns of access and use, and to investigate any possible variations. The answers to these questions are presented in this article.

Access to, and previous experience of, the Internet in education

Access to computers/Internet

Norway leads the world in the use of the Internet (TNS Gallup 2005). 85 % of Norwegian companies with 10 or more employees had Internet access in 2002. The increase in the period 1998 – 2002 was 45 % (Statistics Norway (SSB) 2002). Access to PC/Internet is now a natural feature of most households: 7 out of 10 Norwegians have a home PC and 63 % of Norwegian households have Internet access (SSB 2005).

This corresponds to our own results. Almost 95 % of students have access at home, 87 % at work and almost 70 % of those who answered this question also

have access elsewhere. In other words, we see that access to technology represents no barrier to pursuing flexible education.

Although access is high, our data indicate that there are some variations, for example in relation to employment status (Table 1) and to age (Table 1 app and 2 app).

Taking Statistics Norway's occupational classification as our basis, we divided our students' occupations into the categories "unskilled", "skilled" and "professional/ managerial". This classification is based on competence requirements for the type of occupation.

As shown in Table 1, there is a marked difference in Internet access between the three occupational categories: those with the lowest educational level and qualifications have more limited access than those with a high level of education and qualifications. About 77% of those classified as unskilled have access, 82% in the skilled category have access and not surprisingly those in professional/managerial occupations have best access, with 93% stating that they have Internet access in their own workplace.

Table 1: Access to the Internet in the personal workplace, by occupational category. Percentage (N=1142)

	Unskilled	Skilled	Professional /managerial	Total
Have access now	77.1	82.0	92.5	87.8
Will have access soon	2.0	3.2	2.1	2.4
No access	20.9	14.7	5.4	9.8
Total	100 (153)	100 (285)	100 (704)	100 (1142)

p=.00

Our data also show that there is a difference between full-time and part-time employees in regard to Internet access at work. About 95 % of full-time employees have access, while 82 % of part-time employees have access (Table 3, app). To sum up, it is the younger, unskilled, part-time employees in, as we have found, the municipal social services sector, who have least access to the Internet at work. This is also an indication of their general conditions of work, meaning for example that these employees seldom have their own, private work station.

Previous experience of ICT in education

Good access to PC/Internet at home and at work implies that many people have experience in using computers. Figures from Statistics Norway show that 80 % of us have used a PC in the last 3 months and 58 % of us use a PC every day (Hansen - Møllerud et al 2005). Most respondents have a positive opinion of their own knowledge and skills in relation to PCs and the Internet. Over 70 % say they have adequate competence in relation to their needs (Rønning et al 2005: 4).

Many adults have also gained experience of computers/Internet through previous education. Two-thirds of our respondents confirm this. Table 2 shows, however, that previous experience of computers/Internet varies in relation to educational background, those with previous higher education being predominantly those with computer experience. 46 % of informal competence students had such experience, as opposed to 78.9 % of those with higher education. Of respondents with previous higher education, it is those who have followed flexible courses who have most comprehensive experience. Many of them have their entire experience of formal learning from this type of

educational model. This is a category of students likely to increase in future years.

Table 2: Previous experience of computers in education according to educational background. Percentage. (N=1452)

	Informal competence	Study competence	Higher education	Total
Have used computers before	46.6	57.1	78.9	66.5
Have not used computers before	53.4	42.9	21.1	33.5
Total	100 (358)	100 (294)	100 (800)	100 (1452)

p=.00

Experience of computers/Internet in an educational context also varies in relation to age. As shown in Table 3, there is a dividing line between those below and those over 30 years of age. Those in the youngest group have mainly acquired their computer experience from full-time, traditional forms of education. For the three other age groups, their computer experience comes mainly from following flexible study programmes of varying length.

Table 3: Previous experience of computers in education by age. Percentage. (N= 1446)

	Age < 30	30-39	40-49	> 50	Total
Have used computers before	79.8	63.3	65.1	68.0	66.5
Have not used computers before	20.2	36.7	34.9	32.0	33.5
Total	100 (168)	100 (570)	100 (530)	100 (178)	100 (1446)

p=.00

Use of the Internet in education – type and frequency

The students were asked how they apply the Internet in their studies. Four basic functions came out clearly: reading course information, receiving/sending documents, searching for course material, e-mail (Table 4).

Table 4: Use of Internet in flexible courses. Type and frequency. Percentage. (N)

	Never	Occasionally	Quite often	Frequently	Total (N)
E-mail	4.9	41.6	34.2	19.3	100 (1425)
Course-related discussion fora	47.8	38.5	10.0	3.6	100 (1346)
Reading course information	3.5	24.3	48.7	23.4	100 (1410)
Searching for course material	6.2	34.1	39.1	20.6	100 (1417)
Chatting	74.3	21.3	3.0	1.4	100 (1335)
Receiving/sending documents	4.8	32.4	39.4	23.4	100 (1412)

Our data show that the Internet is now the most important channel for organizing different aspects of flexible courses. Almost 75 % of our students use the Internet actively to read course information and about 60 % receive/send documents. About 60 % of the students also use the Internet to search for relevant course material. This partly involves material the educational institution puts out on the Web itself, partly following up course instructors' references and partly an active search for supplementary material on the students' own initiative. It is students on the longest courses [2]and female students[3] who are most active in regard to using these functions.

A little over half the students state that they are active e-mail users. This activity varies with age. Among students aged below 30, 60.5 % say that they use e-mail quite often or frequently, while of those aged 50 or over 45.1 % say the same (Table 4, app). At the same time we should note that the other half of our respondents relatively seldom (never /occasionally) use e-mail. This probably has more to do with the fact that students feel no need for extended communication than with any lack of skills on their part. Our data analysis, however, shows a significant correlation between previous experience of computers in education and use of e-mail (Table 5, app).

The two most "communicative" functions are those least used (discussion fora and chatting). 47.8 % have never used "discussion fora", 74.3 % have never chatted online. Only 4.4 % are active chatters (Table 4).

Communication and contact with fellow students and academic staff

Adult flexible students primarily carry out their studying and learning on a solitary basis. It is therefore an important challenge on the part of the institutions at some point to provide individual help, support and encouragement, and to offer some measure of academic and social integration (Grepperud 2005 b). In the present situation this takes place primarily during the plenary sessions. In our survey, however, we have seen it as important to find out if, and to what extent, contact outside plenary sessions occurs.

Table 5 shows the fora used by the students and the extent of these contacts. The level of activity may be described as "less than medium" and is distributed more or less equally among the three arenas: telephone, Internet/e-mail and physical (face-to-face) meetings.

Table 5: Contact with fellow-students outside class sessions, by communication and meeting form. Percentage. (N)

	Telephone	Internet/e-mail	Physical meetings
Never	17.7	17.2	25.3
Occasionally	52.6	56.6	47.1
Quite often	22.3	21.9	20.7
Frequently	7.4	4.2	7.0
Total	100 (1311)	100 (1283)	100 (1337)

Do students prefer one type of contact to another, or is it the case that activity in one area breeds activity in another? A bivariat correlation analysis shows that there are weak but positive correlations between telephone and Internet contacts (Pearson Corr. 0.264, p<.01), telephone contact and physical meetings (Pearson Corr. 0.233, p<.01) and between Internet contact and physical meetings (Pearson Corr. 0.107, p<.01). Since these correlations are weak, no great significance should be attached to them. In other words, we found no support for our assumption.

Students following professional training courses, primarily female first-time students, are the most active users of all three communication and meeting channels (Table 6, 7 and 8, app). In regard to the telephone and physical meetings, they show significantly higher activity than the other student groups. In regard to telephone use, 43.2 % of these students state that they use it frequently while for example 10.5 % of the students following courses of shorter duration do the same. For physical meetings, 34.3 % of students on professional training courses show a high level of activity, while for example only 6 % of students on Master's degree courses do so. In terms of use of the Internet as a communication channel, our survey shows that 30 % of students

on professional training courses have a high level of activity versus 20 % of students following courses of shorter duration.

Our data also show that contact with teachers outside plenary sessions occurs seldom compared to contact between the students themselves. The most common response category was use of telephone and Internet "occasionally" (Table 6). It is mainly those following the longest studies (professional training and Master's degree courses) who report that they have occasional telephone contact with their teachers (Table 9, app).

The Internet/e-mail plays a more significant role in teacher contact than the other communication forms. Almost 1/5 of the students state that they often or frequently contact their teachers in this way. Use of the Internet varies with age among the respondents. While 30 % of respondents under 30 use this channel, 11 % of those over 50 do the same (Table 10, app).

Table. 6: Contact with teachers outside group sessions, by communication and meeting form. Percentage. (N)

	Telephone	Internet/e-mail	Letter/fax	Physical meetings
Never	43.5	10.8	86.5	72.9
Occasionally	53.5	71.0	12.7	25.5
Quite often	2.6	14.6	0.8	2.2
Frequently	0.5	3.6	-	0.3
Total	100 (1279)	100 (1388)	100 (1185)	100 (1222)

¼ of the students report that they meet their teachers outside ordinary teaching periods and plenary sessions. Two factors may offer an explanation for this: i) the students in question live in physical proximity to their campus, or ii) meetings with teachers are part of the actual study scheme. This may occur in connection with writing essays or during praxis periods. Master's degree course students (36.3 %) and professional training students (29.5 %) are those who most frequently state that they have meetings of this nature with their teachers (Table 11, app).

ICT in everyday education – concluding reflections

The results from this survey of ICT use in flexible education in Norway may be summed up in the following three conclusions:

Good access

The main picture is that the respondents do have very good access to ICT. However, there are variations, particularly visible in connection with occupational status. Employees with low occupational status come out less favourably than the others. In this group we find a substantial number of students following professional studies, and they are employed as unskilled workers on a part-time basis within the health care and education sectors.

The disparities in access to ICT in the workplace, on the other hand, do not seem to have any negative impact on the overall study efforts in this sample. This can be explained by the fact that 86 % of the respondents claim that their study activities primarily take place at home (Grepperud, Rønning, Støkken 2006 :47).

There is no doubt that good access provides a solid basis for increasing the use of ICT in flexible education. On the other hand, there is no obvious or linear correlation between access and use.

For instance, it is a well known fact that there may be substantial competition between family members at home or colleagues at work to get the opportunity (time) to use the computer. In the Swedish version of our questionnaire, we asked the following question: "If you have access to a computer, can you use it whenever you want"? Among 100 flexible students at Gävle College, 76 % answered "yes" and 24 % "no" to this question (unpublished data). Women in particular point to men's power of definition in these contexts, although it is hardly perceived as an insurmountable problem.

Another obstacle to getting access to the full potential of ICT is the different standards and variations in bandwidth installed in Norwegian homes. This imposes limitations on what is possible to actually send or receive over the web. The situation today is that between 30 % and 50 % of Norwegian households have access to high speed bandwidth (SSB 2006).

The correlation between access and use is also influenced by the student's own level of digital competence. For some students, the educational context provides their first encounter with ICT. Lack of experience and skills can easily turn out to be a source of annoyance and an extra burden. But competence deficiency is most likely a diminishing problem. A national survey investigating the population's digital competence indicates that most people have come to acquire a fair amount of experience with computers on an everyday level (Tønseth et al 2006). Our survey supports this impression of the present situation, as 2/3 of the respondents reported having some experience with ICT from earlier education. On the other hand it has been shown that some of the specially-designed computer and Internet systems currently in use in educational contexts can lead to problems and frustrations. For example, different Learning Management Systems (LMS) are still a source of difficulties for many students (Nyhus & Nordkvelle 2003:146; Grepperud & Haugsbakk 2003).

Using basic functions

In the prestudy for this survey, we concluded that adult, flexible students had a cautious but positive attitude to the use of ICT in study programmes (Grepperud et al 2004). The present survey goes far towards confirming this conclusion (Grepperud et al 2006). Internet use is not characterized by the advanced or spectacular, but by simple communication such as searching for information and sending/receiving textual material

The communicative/interactive functions are used in an even more modest fashion. Although there are examples of the opposite (Dysthe 2001, Nyhus & Nordkvelle 2003), such limited communicative interaction is confirmed by a number of other studies as well. We also have evidence that Internet use in itself may be described as being carried out at a low cognitive level (Bullen 1998; Løkensgard Hoel 2003, Nyhus & Nordkvelle 2003, Grepperud & Haugsbakk 2003).

A number of factors may shed some light on these priorities (Bullen 1988). We would like to draw attention to three central points: i) characteristics particular to the adult, flexible student, ii) the students' general computer habits and iii) educational institutions' use of LMS.

In their busy daily routine, it is important for students in this category to spend their study time as effectively as possible. They are concerned to establish a satisfactory balance between the work they put into their studies and what they get in return. For that reason, many adult students say they are very pleased to be able to use simple basic functions because this makes their study routine easier (Grepperud, Rønning, Støkken 2004). Participation in

discourse with fellow students on the Internet demands an effort from the students that exceeds both the time they have at their disposal and the returns they get from it. Our respondents seem to satisfy their need for academic discussions elsewhere, i.e. during plenary sessions (Grepperud & Haugsbakk 2003).

Students' tendency to use simple basic functions must be seen in light of the predominant use of these functions in other contexts. Studies of computer use in the Norwegian population at large show, for example, that searching for information, the use of various services and e-mail communication are key functions (Rønning et al 2005; Tønseth et al 2006; Hansen - Møllerud et al 2006)

Students' Internet activities also reflect how educational institutions themselves shape the pattern of use in flexible studies. The implementation of LMS in higher education institutions in Norway has played a significant role in determining that course organization and administration take place via the Internet. This applies to both on-campus programmes and flexible studies. In teaching, however, little weight is attached to academic communication via the Internet. Serious professional discourse is still the exception rather than the rule (Alexandersen 2001). This is usually mentioned as a possibility which is open to students to use if they wish.

Our survey also shows that female students and students on longer study programmes are the most active users of basic functions. This activity on the part of female students can be taken as an indication of a more general finding implying that they are more strategic ICT users than men (Rønning et al 2005). Their level of activity also says something about female students' study and learning strategies. Perhaps they are also more dutiful than their male counterparts, and adhere faithfully to the official scheme designed by the educational institution? The differences in use connected to length of study are probably due to the fact that skill develops over time through continuous use. It is also likely that longer studies require a wider repertoire of use.

Communication and contact – need for improvement?

The final conclusion that can be drawn from our study is that communication outside plenary sessions is not as extensive as might be expected. This concerns both contact between students and between students and teachers. We had expected to see a more extensive use of Internet/e-mail, since e-mail is now generally widespread in the everyday context (Table 5).

In addition, we also found that there are minor differences between the different media of communication (telephone, physical meetings and Internet/e-mail). The results also show that, despite low frequency of use, most respondents have one or other form of interaction with their fellow students and with their teachers as well.

The results therefore indicate that digital communication has by no means replaced other media such as the telephone or physical meetings. In other words, the Internet may be considered a supplement to the two more conventional types of student contact.

Just as interesting is the fact that almost one-third of the students state that they "quite often" or "frequently" meet face to face. But for physical meetings to take place, it is necessary for students to live close to each other. Professional training courses and a number of continuing education programmes (single subjects of more/less than one year's duration) tend to be available in particular regional areas and therefore recruit most of their students from there (Grepperud 2004). Master's degree courses, on the other

hand, often draw their intake from a wider geographical area. This makes it difficult for students to meet outside the scheduled plenary sessions.

There is also reason to emphasize that students on professional training courses, and hence most first-time students, are the most active in relation to maintaining contact with their fellow students. The survey shows that this group is also the most active in regard to obtaining support from their local environment (Grepperud m. fl. 2006). In view of this, the degree of interaction and contact between sessions cannot only be explained in terms of the digital and non-digital arenas in which it takes place. It is also a matter of the student's previous educational background and the scope of the course in question.

Contact with teachers takes place "occasionally", and primarily via the telephone and Internet/e-mail. The most interesting point here is that the use of Internet/e-mail is now the most common channel of communication between student and institution and teachers (Table 6). Other channels are considerably less used. Although not expressly demonstrated in our survey, there is reason to assume that student communications addressed to teachers have grown in extent through the use of Internet/e-mail. That the Internet should assume such a prevalent position is quite natural, as a result of the following factors:

- It can be difficult to get hold of teachers in any other way except by prior appointment.
- Contact is often linked to written work/texts.
- Internet/e-mail communication entails a "state of mind" which makes it easier to contact teachers. For many adult students, not knowing the academic staff very well - and perhaps out of (a rather exaggerated?) respect for academia can act as a barrier to direct contact (Klingenberg 2005).

The Internet gives new and improved access to teaching staff in higher education. This has both positive and negative consequences. For teachers, increased access has led to more claims on their attention. They can shield themselves from students' questions and queries to a lesser extent than previously. From the students' point of view, an immediate response to their communications is expected.

Conclusion

According to our survey, the PC/Internet now appears to be an integral part of study programmes and adults' everyday study contexts. All our respondents have in one way or another access to this medium. Its use is primarily directed towards what may be characterized as basic functions, by which we mean functions such as producing written texts and searching for, receiving and sending information. The communicative functions (discussions, chatting etc) are considerably less in use. This reveals a more general trend in the use of ICT in education, regardless of educational level.

In the field of ICT research, concern is often expressed over students' limited use of communicative functions. For this reason, emphasis is also put on explaining why this is so, and various suggestions have been put forward for encouraging greater prevalence of digital discourse. Nyhus & Nordkvelle point to two problematic factors in these analyses: factors of an incompatible nature are often compared, and comparisons are made out of context (Nyhus & Nordkvelle 2003: 152-154). This means that the premises and

recommendations presented do not adequately reflect the actual situation. Such recommendations therefore tend to be too general to be helpful.
We do not share this concern over the modest extent of digital communication. Our survey gives no grounds either for asserting that educational institutions should put much greater effort into increasing such communication. An alternative interpretation of our data would therefore be that digital communication has found its natural level in the flexible study model and represents an important supplement in its present form. It thus actually serves an important function. Researchers' unease over the lack of digital academic discourse is not shared by the students themselves; partly because they find room for such discussions in other contexts, partly because these are highly self-directed students.

Since flexible students only exceptionally find themselves in an on-campus study environment, however, it remains a challenge for educational institutions to establish a situation in which students feel a sense of belonging and encouragement (Tinto 1987).

There are differing opinions on how far flexible students need this, but there is evidence that many adults students feel the need for some sense of inclusion despite their off-campus status (Kember et al 2001, Roos 2002, Grepperud et al 2004). Its importance has to do with creating structure, seeking support and maintaining motivation. Women appear to attach greater weight to this than men, although the results here are not unambiguous (Grepperud 2005 b).

Given all this, we might expect there to be a higher degree of communication and interaction in the intervals between plenary sessions and that the digital arenas would be frequently used to strengthen social and academic integration. Since communication between students is not in fact extensive, this can be explained by the model itself and by the availability of a variety of arenas for interaction. We must also remember, however, that these students attach great importance to support and cooperation in other social arenas, primarily the home environment and from their own partner (Grepperud et al 2006).

Summing up, we can say that students' use of ICT depends on a number of factors. The results of our survey highlight the importance of two key factors in flexible education: the study model itself and features particular to the study context of adult flexible students.

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Appendix

Table 1, app. Access to Internet at home for adult flexible students, by age. Percentage. (N=1442)

	Age =>50	40 – 49	30–39	< 30	Total
Have access now	96.1	96.0	93.5	88.5	94.2
Expect access soon	0.6	2.3	3.9	5.5	3.1
No access	3.4	1.7	2.6	6.1	2.8
Total	100 (178)	100 (529)	100 (570)	100 (165)	100 (1442)

p<.05

Table.2, app. Access to Internet at work for adult flexible students, by age. Percentage. (N=1189)

	Age =>50	40–49	30–39	< 30	Total
Have access now	96.3	89.8	84.7	75.7	87.0
Expect access soon	1.2	2.1	2.2	5.7	2.4
No access	2.5	8.0	13.1	18.6	10.5
Total	100 (161)	100 (423)	100 (465)	100 (140)	100 (1189)

p=.00

Table 3, app. Access to Internet at work for adult flexible students, by employment status. Percentage. (N=1172)

	Full-time	Part-time	Leave of absence	Unemployed/rehabilitation/ sick leave	Total
Have access now	94.6	81.4	71.0	52.7	87.0
Expect access soon	1.6	2.7	6.5	6.8	2.4
No access	3.9	15.8	22.6	40.5	10.6
Total	100 (699)	100 (366)	100 (31)	100 (76)	100 (1172)

p=.00

Table 4, app. Use of e-mail, by age. Percentage. (N= 1420)

	Age =< 30	30-39	40-49	>50	Total
Never	3.6	6.0	3.3	6.9	4.9
Occasionally	35.9	39.1	44.1	48.0	41.6
Quite often	32.9	33.7	36.7	29.7	34.2
Frequently	27.5	21.1	15.9	15.4	19.3
Total	100 (167)	100 (563)	100 (515)	100 (274)	100 (1420)

p=.00

Table 5, app. Use of e- mail, by previous experience of computers in education. Percentage. (N=1407)

	Previous computer use	No previous computer use	Total
Never	4.4	5.8	4.8
Occasionally	39.6	45.8	41.6
Quite often	34.5	33.1	34.0
Frequently	21.5	15.3	19.5
Total	100 (942)	100 (465)	100 (1407)

p<.05

Table 6, app. Contact with fellow students by telephone, by education category. Percentage. (N=1318)

	Professional education	Master	Single subject 1 year and more	Single subject less than 1 year	Total
Never	8.6	15.6	25.8	35.6	17.8
Occasionally	48.1	67.5	57.7	53.9	52.6
Quite often	31.3	13.0	14.7	8.2	22.3
Frequently	11.9	3.9	1.8	2.3	7.4
Total	100 (696)	100 (77)	100 (326)	100 (219)	100 (1318)

p=.00

Table 7, app. Contact with fellow students via Internet, by education category. Percentage. (N=1289)

	Professional education	Master	Single subject 1 year and more	Single subject less than 1 year	Total
Never	13.9	6.0	19.2	29.1	17.5
Occasionally	55.7	68.7	59.4	50.0	56.5
Quite often	25.6	21.7	17.3	17.8	21.9
Frequently	4.7	3.6	4.0	3.0	4.2
Total	100 (653)	100 (83)	100 (323)	100 (230)	100 (1289)

p=.00

Table 8, app. Contact with fellow students through physical meetings, by education category. Percentage. (N=1344)

	Professional education	Master	Single subject 1 year and more	Single subject less than 1 year	Total
Never	16.5	31.3	33.4	37.0	25.1
Occasionally	50.1	62.7	46.0	34.9	47.2
Quite often	25.1	3.6	16.9	18.9	20.7
Frequently	8.3	2.4	3.7	9.2	7.0
Total	100 (697)	100 (83)	100 (326)	100 (238)	100 (1344)

p=.00

Table 9, app. Contact with teachers via telephone, by education category. Percentage. (N=1284)

	Professional education	Master	Single subject 1 year and more	Single subject less than 1 year	Total
Never	38.0	28.6	51.6	54.6	43.6
Occasionally	57.8	67.5	46.9	43.6	53.3
Quite often	3.6	1.3	1.6	1.4	2.6
Frequently	0.6	2.6	-	0.4	0.5
Total	100 (669)	100 (77)	100 (320)	100 (218)	100 (1284)

p=.00

Table 10, app. Contact with teachers via Internet, by age. Percentage. (N=1388)

	Age = < 30	30-39	40-49	>50	Total
Never	7.9	12.3	10.5	9.4	10.8
Occasionally	62.2	68.6	73.8	79.4	71.0
Quite often	20.7	15.4	12.9	10.6	14.6
Frequently	9.1	3.6	2.8	0.6	3.6
Total	100 (164)	100 (551)	100 (503)	100 (170)	100 (1388)

Table 11, app. Contact with teachers via physical meetings, by education category. Percentage. (N=1228)

	Professional education	Master	Single subject 1 year and more	Single subject less than 1 year	Total
Never	70.6	63.2	76.1	78.5	72.9
Occasionally	26.3	35.5	21.3	19.2	24.5
Quite often	2.7	1.3	1.6	2.3	2.3
Frequently	0.5	-	0.3	-	0.3
Total	100 (632)	100 (76)	100 (306)	100 (214)	100 (1228)

[1] NOU is a national initiative for change and innovation in Norwegian higher education. It was established in 2004 by the Norwegian Ministry of Education and Research.

[2] Difference between courses of study, all three functions (p=0.00).

[3]"Read course information" and "receive/send documentation"(p=0.00), for "searching for course material" (p<0.01)