

# Local support for online learners with possible learning disabilities

---

Torstein Rekkedal [torstein.rekkedal@nki.no]

NKI [http://www.nki.no],  
Hans Burums vei 30,  
1319 Bekkestua, Norway  
Norwegian School of Information Technology [http://nith.no/english]

---

## Abstracts

### Norwegian

Artikkelen rapporterer fra et forsknings- og evalueringsprosjekt om nettbasert individuell fjernundervisning for kompetanseutvikling i forbindelse med yrkesmessig attføring. Studentene i undersøkelsen er voksne med ulike helsemessige problemer som er inne i et attføringsløp med sikte på å komme tilbake i arbeid. Som gruppe har deltakerne ulike personlige problemer, vanskeigheter og diagnoser som for mange også innebærer læringsproblemer.

Studien ser på resultater av å kombinere individuell nettbasert utdanning med støttetiltak organisert av lokal attføringsbedrift. I artikkelen dekker støttebegrepet alle former for ikke-faglige tjenester og hjelp til studentene i studiesituasjonen og inkluderer ikke lokal undervisning med lærer. Type og mengde av støtte og hjelp vil kunne variere fra sted til sted og fra student til student, avhengig av lokale budsjetter, antall studenter lokalt og deres individuelle behov og type og nivå på studietilbudene.

Studien viser at nettbasert utdanning kombinert med tilpasset adekvat lokal støtte kan være en meget god løsning for denne målgruppen. Både saksbehandlere i NAV, lokale veiledere og studentene selv rapporterer positive erfaringer med det pedagogiske opplegget og den organisatoriske løsningen. Statistikk knyttet til fullføring og frafall viser at denne gruppen med potensielle lærevansker knyttet til helse og andre personlige problemer kan lykkes svært godt i nettbasert utdanning når de mottar tilstrekkelig sosial, teknisk og praktisk støtte og oppfølging i studiearbeidet.

### English

This article reports from a research study concerning online distance study for competence development of vocational rehabilitation clients. The students included in the study are adults with health problems participating in a rehabilitation process to re-enter into working life. As a group the students are characterized by difficulties, problems and diagnoses that for many represent learning disadvantages. The study examines the results of combining individual online distance learning with support organized by a local vocational rehabilitation enterprise. In this article student support refers to all kinds of non-academic services and help to students, and does not include any face-to-face teaching or tutoring. The amount and type of local support given and how it has been experienced by the individual student may vary between the different enterprises, dependent on their budgets, number of students in the learning room, types of programmes studied and individual needs of the local students.

The study indicates that online distance study with adequate local support may constitute a good solution for this target group. Both case handlers in the Welfare and Labour Administration, local counselors and the students themselves report positive experiences with the learning solution examined. Statistics on completions and withdrawals demonstrate that the group of potentially disadvantaged learners achieve well in online study when they receive sufficient social, technical and practical support.

## Keywords

disadvantaged learners, students support, online learning, completion rates, interview study

## Introduction

This article reports from an evaluation study among a specific group of learners taking online courses for competence development for vocational rehabilitation and re-entrance to working life (Rekkedal 2009). The vocational rehabilitation system of Norway gives practical and financial support through the Norwegian Welfare and Labour Administration (NAV) to help adults, who because of health difficulties have to change the type of job they can handle. Retraining and competence development is one most important element of rehabilitation, often combined with work practice at a relevant workplace. As the largest online institution in Scandinavia, NKI has a long tradition of supplying distance online courses to this group of students. Over time there has been some success with blended learning, i.e. online courses combined with local classes for this group of learners, while individual distance learning has had less success, mainly because of an assumed higher drop-out rate among these learners. Thus, many case handlers at NAV have been quite reserved concerning financing individual online learning programmes for

this user group. (The official term for rehabilitation clients is the Norwegian term for 'user of vocational rehabilitation services'.)

Some few years ago NKI together with a local vocational rehabilitation enterprise took the initiative to explore solutions for satisfying the learning and support needs of this group in better and more efficient ways than had been done before. The main reason was that although a blended learning approach had had a certain success; blended learning could not solve the general problem, as blended learning does have some disadvantages for this group:

1. The individual competence development needs vary, and very seldom there are a sufficient number of students having the same need at the same time to start a local class.
2. It is imperative that these students can start their learning just at the time when they feel the need and are ready, and motivated, for learning.
3. Because of a number of health, and often also social, difficulties, they need maximum flexibility to adjust study work to what they have the energy to manage on a daily or weekly basis.

The solution that came up was the concept of 'individual distance learning in the learning room'. The idea was to combine individual flexible online learning with local support in the 'learning room'.

Student or learner support is defined in different ways in the distance and online learning literature (see e.g. Brindley et al. 2004) It might cover learning materials, teaching and tutoring and non-academic elements administrative aspects, guidance and counselling. In this article student support refers to all kinds of non-academic services and help to students, and does not include any face-to-face teaching or tutoring.

The local vocational rehabilitation enterprise establishes a physical room furnished for learning with all necessary facilities including computers, Internet access, individual study areas and areas for social activities and co-operation – the 'learning room'. In addition, there is an educational counsellor available, who supports the students in deciding which online programme that is best suited for each individual, and who is able to give advice and support to the students in their learning endeavour. Technical and practical support is supposed to be continuously and easily available. The students in the learning room can study any online programme, start at any time, proceed at their own pace and interact socially, and sometimes academically, with other students studying the same, similar or different courses. Incidentally, they may have fellow students studying the same programme being ahead, behind or at the same stage studying the programme. Specifically, it was considered for these students that bringing structure into their lives by requiring an agreement of meeting physically for learning activities at specified times and days would be very important for their success. Since the start about 5 years ago the idea has spread, and this co-operative solution to support individual learners has been established by a number of local rehabilitation enterprises, which also have made agreements with other online distance learning providers. It should be emphasized that the support in the learning room concerns, practical, technological and social support of individual online study, but generally no face-to-face teaching. However, the amount and type of support given may vary a lot between the different enterprises, dependent on their budgets, number of students in the learning room, types of programmes studied and individual needs of the local students. The solution is strongly supported by the national Association of Vocational Rehabilitation Enterprises. This study concerned NKI rehabilitation students and was carried out in co-operation with the Association.

## **Aim and method of the research**

The main aim of the present evaluation study has been to find answers to whether the pedagogic and administrative arrangement of combining online study with local support in the learning room for this group of learners did function according to expectation, and not least demonstrate for the Welfare and Labour Administration (NAV) as funding source for rehabilitation processes that, if results were satisfactory concerning completions, attitudes and achievements, individual online learning with local support could constitute an effective and cost-efficient solution for competence development, and eventually bring the users back into working life. This study is mainly concerned about the competence development aspect of the rehabilitation process. Whether and how soon the user may return back into working life is dependent on many other factors, both related to the person and to the local labour market.

The research chose a sort of triangulation method (see e.g. Bryman 2001), including telephone interviews with students in the learning room (30), with local organisers (25) and local representatives of NAV (12), which is funding both the courses and the support supplied by the local organisers. In addition, statistical data on completion and attrition rates among online students in the learning room and other individual online and blended learning students was collected. The interviews were carried out by the author of this paper and answers were registered in writing during the interviews.

## **Students with special needs and/or learning disabilities**

### **Special needs among online students in the vocational rehabilitation programme**

There is probably no doubt that students in the vocational rehabilitation programme as a group have greater personal, social, health and other difficulties, such as reading and writing problems, than the general online learning population, that may interfere with learning efficiency. This is exemplified by some

of the local counsellors with statements such as:

- *"One of the problems is that they have all kinds of individual needs. It ranges from help to get up in the morning, meeting at agreed times, plan their studies, reading and writing. Many do have large reading and writing difficulties."*
- *"... Many lack social experiences and really need to be socialized."*
- *"... The user is often in a situation having lost social identity and role and economic security and has to define a new existence, this often combined with health problems that gives new frames of reference in life."*

Some statements from the NAV representatives:

- *"We often see that users have the intellectual capacity for formal learning, but cannot take advantage of the ordinary school system because of experiences of having lost self confidence in the ordinary school system, and often also have a personal situation with physical and psychological problems, including mental processing abilities, e.g. ADHD etc., that reduce their capabilities and make it impossible to spend whole days and whole weeks for study."*
- *There are large differences in needs, some struggle with anxiety problems, ... some have a history of being bullied in school etc.; ... the support in the rehabilitation enterprise gives social support and security for progress in the studies."*

Also student statements give a picture of special needs:

- *"The flexibility of online learning is important as I have an ADHD diagnosis and concentration difficulties."*
- *"The flexibility is important because there are all sorts of different reasons for being in a rehabilitation programme. I have to take the days as they come."*

According to the Association of Rehabilitation enterprises information about diagnoses of users are not well systematized. The following represents information from 2009 of users' diagnoses as indicated from NAV to the rehabilitation enterprises (information is available for only about 25 percent):

<i>Psychological diseases/difficulties</i>	<i>26%</i>
<i>Drug/alcohol abuse</i>	<i>5%</i>
<i>Muscle/skeleton diseases</i>	<i>32%</i>
<i>Mentally retarded</i>	<i>2%</i>
<i>Sense losses</i>	<i>1%</i>
<i>Socially maladjusted</i>	<i>7%</i>
<i>Other (ADHD, mixed problems, uncertain diagnoses)</i>	<i>27%</i>

(Association of Rehabilitation Enterprises 2010, unpublished)

## Online learning and learners with learning disabilities

The above statements and information do by no means imply that all rehabilitation students have disabilities or learning disadvantages. However, there are good reasons to assume that measures to satisfy 'universal accessibility standards' and solutions to support learners with reading and writing difficulties represent improvements in user functionality also for the average students.

We agree with Nielsen (2000), who states that:

*"Designing online Internet-based courses that are accessible to students with disabilities results in courses that are easier to use and understand for everyone."* (Here quoted from Edmonds 2004, p. 51)

This assumption has been the basis for some previous NKI projects on disadvantaged learners, '*Distance education for adults with reading and writing disabilities*' (Lundberg 1996, Letrud et al. 1997) and the '*Universal accessibility project*' (Mortensen 2003). As a result of these projects the NKI online learning web pages have been adapted and assessed according to universal accessibility standards, and a synthetic speech solution is implemented for all online text materials.

There is no doubt that online distance education may represent an opportunity for learning for people with some kinds of disabilities better than traditional forms of education that require physical presence at defined times and places. This author's incidental meetings with disabled distance learners during over 40 years in the field are numerous. Some of these are described in an article on '*who is the distance*

*student?*' (Rekkedal 2004) and illustrate how online learning gives new and better learning possibilities for many disabled students.

The proportion of disabled students in distance education programmes may differ a lot, estimates vary from 1.5% to 4% (Paist 1995, Moisey 2004). Letrud et al. (1997) estimated on the basis of an analysis of written assignments that over 10% of the participants in a vocational training programme for caretakers had serious reading/writing difficulties. Supporting disadvantaged distance learners is a matter of both making online materials and communication universally accessible (W3C 2010) and support learners according to each individual's needs. Internationally there is a certain attention towards challenges concerning distance education and accessibility, partly as a result of distance education institutions being specifically attentive to service disadvantaged learners, and partly because electronic distribution and communication may involve great advantages, or disadvantages, for some learners with certain disabilities according to how accessibility issues are attended to, see e.g. California Community Colleges (1999), Banerjee (2003), TRACE Center (2007), Roberts & Crittenden (2009), Burgstahler (2010). Burgstahler et al. (2002) describes the situation well:

*Technology "...has also been viewed as a great equalizer when used by individuals with disabilities. However, the full potential of using technology in education to benefit individuals with disabilities is not being realized. Ironically, one reason this is happening is that not all students can access the technology that has the potential to provide a more accessible educational opportunity."* (Burgstahler et al. 2002, p. 1)

Moisey (2004) has studied characteristics of students with disabilities in a cohort of distance students at Athabasca University including study success and possible effects of specific support services. These students had a wide range of disabilities including learning disabilities and psychological disabilities:

*"Students who received more types of support services tended to have somewhat more success in terms of course completions, and certain types of disabilities appeared to be more amendable to certain types of assistance."* (Moisey, 2005, p. 73)

Paist (1995) has discussed a philosophy for distance education and disabled students based on ethical, legal and practical considerations and the practical applications of this philosophy for University of Wisconsin-Extension. She also refers to the enrolment of vocational rehabilitation clients with probably similar characteristics of the students in our study. Practical actions involve eight components:

- *"Informing students with disabilities or their advocates about our program and our ability to meet their needs*
- *Case-by-case planning for accommodation and access*
- *Making instruction accessible*
- *Making course materials accessible*
- *Making testing accessible*
- *Training and supporting faculty and staff*
- *Getting funding to support efforts to serve students with disabilities*
- *Staying abreast of developments, especially technological developments, that will improve future services and access"* (Paist 1995, p. 65)

There is not much research published on the relative success of disadvantaged learners in distance and online learning. Moisey (2004) reported from Athabasca University that students with disabilities did not show markedly different completion patterns from the average student population. However, there were some differences, e.g. that students with psychological disabilities showed somewhat lower completion rates, while students with hearing and vision loss completed at a somewhat higher rate. Disabled students who received more support services had more success concerning course completions. That disadvantaged students possible might succeed in online distance learning if adequate support services are available, is of specific relevance for our study.

Shonfeld & Rohnen (2009) explored how an online distance course with face-to-face meetings could answer the needs of different student groups, including students with learning disabilities. Based on the assumption that students with learning disabilities might be affected by disorders that influence the use of listening, reading, writing, reasoning and other skills that influence learning efficiency, they found it of interest to examine how these students were learning and integrated in an online course. The study did not report study success directly, but reported on how students with learning disabilities experienced their learning abilities and activities in an online study situation. The researchers report that results were surprising, e.g.:

*"... that an online course can improve students' learning, emphasizing self-directed learning, participation in forums, satisfaction from online labs and the final grade evaluation. A slight but explicitly marginal advantage of the LD (learning disability)*

*students was presented when compared to 'Regular' and 'Excellent' students."* (Shonfeld & Rohnen, 2009)

The research further indicated that the advantage of online learning for 'excellent' students and LD students is different. LD students find online students as a flexible solution that enables continuing learning with necessary personal time management; the honor students see it as a flexible place that can save them time. The LD students were courage by intensive communication with instructors and peers, while the honor students enjoy being independent from class interaction.

## Results

### Interviews with local representatives of NAV

The interviewees were selected on the basis of information that they worked as manager or consultant/case handler at a local office, and that they had some experience with funding competence development through online learning and local support in the learning room for one or more users. In total we had a list of 21 possible interviewees. Reaching these persons on the telephone turned out to be difficult. 12 case handlers and/or managers from 11 different offices were interviewed.

Some conclusions:

It was a general impression that the consultants and managers who had some experience with the learning room solution expressed very positive attitudes. The main aspects that were pointed out were:

- Individual online learning combined with follow-up, support, guidance and social presence in a group of learners is much more effective than individual online distance learning for vocational rehabilitation users.
- The learning room solution is not suitable for all users. Some consultants point out that some users have too many difficulties to be able to take advantage of online learning and need the direct teaching in a classroom.
- The learning room solution functions much better than face-to-face for many users because the solution in practice gives much better individual follow-up, and also because many users have a history of bad experiences from previous school attendance resulting in negative attitudes and anxiety for participating in settings that remind of a traditional school situation.
- The learning room solution is more flexible and better adapted to users who have to relate efforts to unpredictable physical and/or psychological conditions that vary from day to day.
- Online learning combined with support and other activities, such as work practice in the vocational rehabilitation enterprise, is a good basis for success in returning to working life.

One manager put his viewpoint very clear:

*"We are so certain about the efficiency of the learning room solution that we have told the rehabilitation enterprises that they have no choice. They have to establish the learning room solution if they wish to continue to be part of the co-operation with the Labour and Welfare Administration in the future."*

### Interviews with local representatives of vocational rehabilitation enterprises

We managed to get in contact with all 25 rehabilitation enterprises that were supposed to have some experience with supporting online learners in the learning room. The respondents were mainly the person who locally had functioned as the local supervisor/advisor/counsellor in the learning room. The individual experiences varied a lot from only having had a few students in the system to having worked with hundreds of online students studying in the learning room solution over some years.

The general impression of the interviews was that:

- The local counsellors express a firm belief that the learning room solution represents an arrangement and organisation of online learning and local support that have proved its worth for the user group in question.
- They are, however, worried that many case handlers in the Welfare and Labour Administration have an outdated attitude towards training and competence development based on a belief that traditional classroom teaching universally represent the best solution for learning.
- They report that the users are satisfied both with online learning and local support, and that there is very little drop out among learners in the learning room. It seems that the only drop outs are

students having so many health problems that study becomes impossible or that they succeed in returning to ordinary working life before they complete the course.

- They point out that quality of online teaching is critical for success. The online teachers have to give quick and sufficiently constructive feedback.
- Individual assessment of each individual user's motivation and health situation, as well as guidance in choosing courses and study planning, is a necessary condition for success.

## Interviews with students

The students were selected from a list of students who were registered as completed or cancelled their online learning contract the last month. We started from the bottom of the list, the most recent completed/cancelled students. The completed/cancelled group included 16 students who had finished their studies, four students who had completed at least one complete study programme and continued to study another and two cancelled students. This group were supplemented with eight students randomly selected among rehabilitation students who had studied 6 months or more. We consider the interviewed students to be close to randomly selected. The student group consisted of 18 women and 12 men coming from seven different rehabilitation enterprises. The relative number of men and women is close to the NKI average with about 70 percent women. They varied in age from below 20 to well over 50. A majority had quite low previous education.

**Table 1.** Age

Below 20	20-29 years	30-39 years	40-49 years	50-59 years	Total
1	4	7	12	6	30

**Table 2.** Previous education

Little	Some secondary	Secondary/craft certificate	Higher education	Total
9	13	7	1	30

**Table 3.** Study status

Completed	Completed/Active*	Active	Cancelled	Total
16	4	8	2	30

\*Completed one or more programmes – having proceeded studying an additional programme.

The two discontinued students gave very different explanations for not completing, as the first said to have dropped out of the competence development programme because of successful effort of quick return to working life, while the second informed that she had never started her studies because her health being too bad to continue in the rehabilitation programme.

Eight of the 30 interviewed students informed that they were back in full time work and four respondents were in part-time work or temporary engagements. Of those in full time work, one meant that the online study had not had any significant effect for success in returning into working life; six said that the studies had been the major reason for success in getting a new job, while one referred not to the course content as such, but meant that the personal development process of studying had been important. Some statements:

- *I am back to work – competed the Accountancy Programme in March 2008 – the study was incredibly important, and I got a job before I finished, a job I could manage with my health problems.*
- *I am back to work – the study was important to get started – I believe it works for the majority of people in the system.*
- *I am in a job where I do not apply what I learned, but I believe the study was important because it demonstrates that I am willing and able to learn...*
- *I am working as apprentice and did get the job because of my online course.*

28 of the respondents were generally positive concerning their experiences with individual online learning with support in the learning room, nine of these had some minor comments on aspects that could be improved, while one was generally critical (the same person that had quit and got work independent of the

rehabilitation programme; critical viewpoints were mainly related to NAV's handling of the rehabilitation programme and not to the learning programme itself). Typical statements:

- *I am very satisfied – very good.*
- *I have nothing to complain about.*
- *Superb, I cannot praise it enough.*
- *Superb, I found it interesting; I liked both the course and the pedagogical solution.*
- *I am very happy that I did not have to work alone; good to have somebody to ask; good to have fellow students to ask and discuss with, not least those who were ahead of me in the same course. ...*

Nearly all express positive experiences with support and guidance in the learning room (21 without and 6 with some minor reservations or comments):

- *It is important that you don't have to sit at home alone; I am a social being, and it is very important with other participants present, even when they study other courses.*
- *I am satisfied – the people in the rehabilitation enterprise are so helpful. No one else studies the same course as me now. In my previous course we were two students. It is very good when we are more than one in a programme; we discuss and solve exercises together. Everyone help each other. We constitute a tight-knit group. Some have already finished. I have got many new friends; it is an excellent situation of co-operation in the group.*
- *I met regularly in the learning room. It is excellent, but much up to yourself; important to take initiative. I experienced that for many it was important with other participants present. For me that was not important – had no need for sharing with others.*

Although there are some few minor reservations, nearly all express positive viewpoints concerning their online learning experiences:

- *Very good learning materials – I have nothing to complain about. I did not get much acquainted with the tutor, but I received very good feedback. It functioned well, received answers to all my questions. I would not change anything. If you are motivated, it works well – you have to be motivated. And you must have time, online study is demanding. I worked most from home, only two days a week in the learning room, but worked mostly alone there as well. I did not have much communication with NKI, but no problems; it went just smoothly.*
- *The learning materials have been easy to read; it has functioned very well with the tutors; I have not experienced slow return of assignments – I know some have.*
- *Generally positive impressions. Very friendly and pleasant tutors who have supplied helpful and thorough feedback. The feedback comments have been good both when the content has been positive or negative.*
- *Absolutely satisfied – very good comments and feedback. The tutor is pleasant and responds nearly immediately and you always get help when you ask. I find the study guides very helpful; they explain the textbooks – you cannot learn with the book only.*
- *The course 'Learning to learn' (optional introductory course to NKI online learning programmes) was motivating and instructive. I have nothing to complain about concerning the tutors. The tutor supply quick feedback – also at late evenings. He is excellent to answer questions; very satisfied with tutors. It could have been some more information and guidance concerning online study in the beginning.*

We asked about positive or negative viewpoints concerning the flexibility of time, which is an important aspect of the NKI, and not least the learning room, solution. The majority point out flexibility as important:

- *Very important; I had work practice beside the studies and have also some physical limitations – important with individual pace.*
- *That is just what is important; that you don't have to follow ordinary secondary school; I really liked this solution.*
- *It is really essential; because I needed time to complete. Very important that you don't have to feel the pressure of time.*
- *Very important – else it had probably not gone well for my home and family situation or in any other way.*
- *Important as we are in a rehabilitation situation for different reasons. Many have to meet and take the days as they come.*

- *Excellent, I had two years to complete, and I did it in one and a half!*

## Conclusions from the interview study

It was a general impression from the learner interviews that the participants have been very satisfied with their experiences of the total learning room solution. They experience good support from the local rehabilitation enterprise, specifically from the supervisor responsible for the learning room. The majority expresses that other participants represent great support, especially if they study the same course, and also when they are at different phases in the course, ahead or behind. Many point out that the social support of other learners, also when studying different programmes, represents positive and motivating support. There is no doubt that the participants experience the structure, guidance, social support and motivation in the learning room as a major factor for success in their online studies. In general, the participants express satisfaction with the online learning solution, emphasizing excellent learning materials and tutor quality with quick turn-around times (regrettably with some exemptions), that they receive response on e-mail requests, and that feedback comments on assignments are thorough and understandable. The interviews indicate that some few of the online tutors are seen not to give sufficient support. The time flexibility of online learning combined with local support is seen as specifically important for their perceived success.

The interviews with the local supervisors demonstrated that they perceived it as a great challenge to follow up and support participants, many characterized by great needs for individual help because of physical and psychological difficulties and learning disadvantages related to reading and writing problems or unfavourable previous school experiences. The supervisors express great belief in the learning room as a sustainable solution for the rehabilitation users in the future. They perceive it as a great challenge to inform and convince local NAV case handlers that, when individual online distance learning is supplemented with local guidance and support in a structured environment as in the learning room, it represents a very good study alternative for these users.

The local NAV consultants, who were interviewed, were selected on the basis that they had some experience in allocating users to the learning room solution. Their unanimous opinion was that individual online learning combined with follow-up, support and social interaction with other online students in the learning room functions much better than traditional individual online distance learning for the target group in question. At the same time they express that this solution is not suitable for all users, as some are considered to have too many personal difficulties to be able to succeed in individual online study, as it still requires a high degree of motivation, initiative and autonomous study activity, also when supported as in the learning room. They see the learning room solution as better than face-to-face and classroom education for many users, because the solution, in fact, supplies better individual support than face-to-face solutions, and not least because many come to the rehabilitation process with a history of unfavourable school experiences resulting in reluctance and anxiety towards any activity that reminds of previous failures. (Full transcripts of all interviews are presented in the original report (Rekkedal 2009).)

## Statistics on study success in the learning Room

The interviews were carried out from august 2008 until February 2009. The answers both from participants and local supervisors indicated relatively high completion rates. Statistical data to examine study success of learning room students were collected October 2010.

Online students in the learning room study a wide variety of different programmes, secondary school courses, state accredited tertiary level vocational programmes and higher education programmes. The statistics below relate to NKI state accredited tertiary level vocational programmes, except "Office worker" that is a small NKI non-accredited online vocational programme (Norwegian legislation on accreditation does not include programmes smaller than equivalent to 1/2 year full time study.) The table and figure presenting statistics of 2008 recruitment to the 35 programmes studied by learning room students include all types and levels of programmes.

The following section presents statistical data on study progression of vocational rehabilitation students and ordinary individual students for the most frequent programmes studied by the rehabilitation students in the learning room. As both groups of students can follow their individual progressions schedule, at the time of data collection, students may either having completed their programme, still being active studying, or having withdrawn. To get a sufficient number of cases, we chose to select students recruited to the four most popular vocational study programmes among rehabilitation students (Accounting, Salary and Personnel work, Caretaker and Office worker) during the four year period from 1. January 2006 until 31. December 2009. In addition, we compared study status between the rehabilitation students and ordinary students on all the study programmes that recruited rehabilitation students during the year 2008. (The last comparison may involve some sources of error as the relative number of rehabilitation students and ordinary students within each programme may differ. Still, there is reason to assume that the comparison is valid for demonstrating possible differences between the groups concerning study success.)

**Table 4.** Study status Oct. 2010 of enrolees to the Accounting programme (Regnskapsskolen) during 2006-2009.

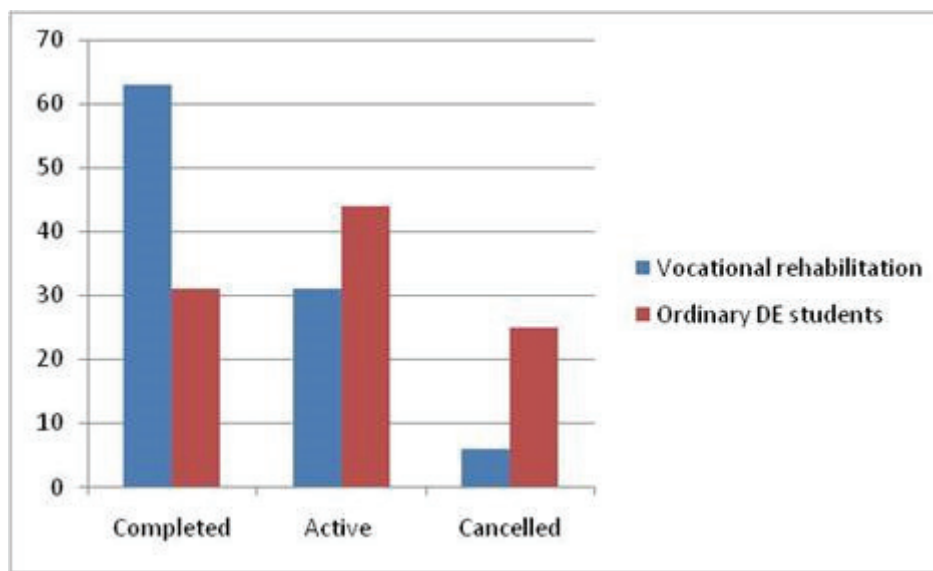
	Vocational rehabilitation group	Ordinary individual DE students	Total



Study status	n	%	n	%	N	%
Completed	51	63	211	31	262	34
Active	25	31	302	44	327	43
Cancelled	5	6	172	25	177	23
<b>Sum</b>	<b>81</b>	<b>100</b>	<b>685</b>	<b>100</b>	<b>766</b>	<b>100</b>

$$\chi^2 = 34.398, df = 2, p < .001$$

**Figure 1.** Graphical representation of completion/non completion rates among students at the Accounting programme 2006-2009.

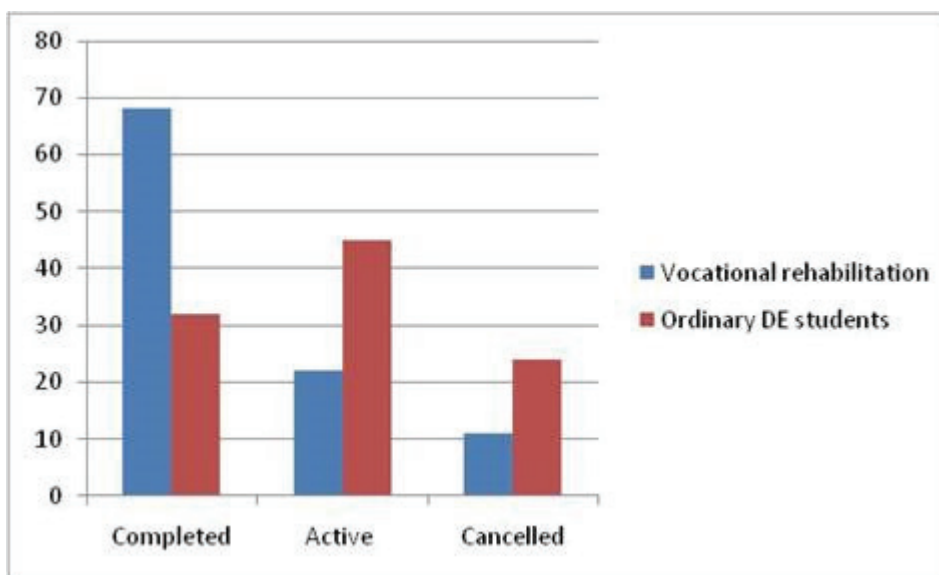


**Table 5.** Study status Oct. 2010 of enrollees to the Salary and Personnel programme (Lønns- og personalskolen) during 2006-2009.

Study status	Vocational rehabilitation group		Ordinary individual DE students		Total	
	n	%	n	%	N	%
Completed	13	68	41	32	54	36
Active	4	22	58	45	62	42
Cancelled	2	11	30	24	32	22
<b>Sum</b>	<b>19</b>	<b>101</b>	<b>129</b>	<b>101</b>	<b>148</b>	<b>100</b>

$$\chi^2 = 8.112, df = 2, p < .025$$

**Figure 2.** Graphical representation of completion/non completion rates among students at the Salary and personnel programme 2006-2009.

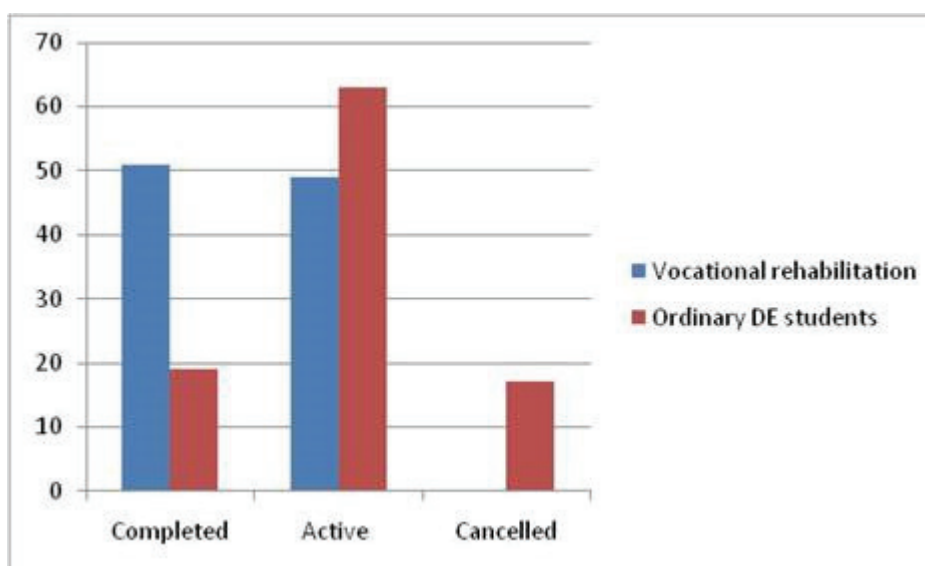


**Table 6.** Study status Oct. 2010 of enrollees to the Caretaker programme (Vaktmesterskolen) during 2006-2009.

Study status	Vocational rehabilitation group		Ordinary individual DE students		Total	
	n	%	n	%	N	%
Completed	18	51	20	19	38	27
Active	17	49	66	63	83	60
Cancelled	0	0	18	17	18	13
<b>Sum</b>	<b>35</b>	<b>100</b>	<b>104</b>	<b>99</b>	<b>139</b>	<b>100</b>

$$\chi^2 = 16.664, df = 2, p < .001$$

**Figure 3.** Graphical representation of completion/non completion rates among students at the Caretaker programme 2006-2009.



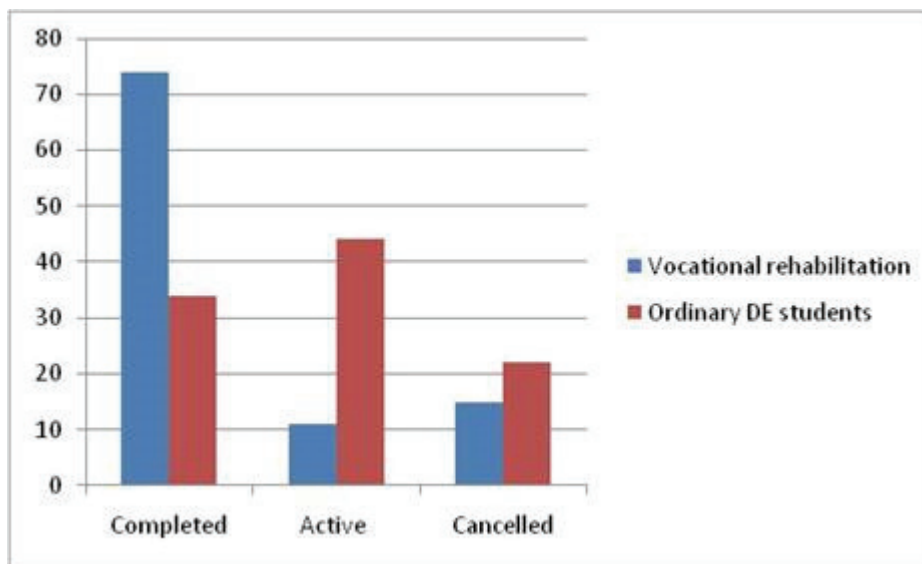
**Table 7.** Study status Oct. 2010 of enrollees to the Office Worker programme (Kontormedarbejderstudiet) during 2006-2009.

Study status	Vocational rehabilitation group		Ordinary individual DE students		Total	
	n	%	n	%	N	%
Completed	51	51	19	19	70	27
Active	49	49	63	63	112	60
Cancelled	0	0	17	17	17	13
<b>Sum</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>99</b>	<b>199</b>	<b>100</b>

Completed	52	74	97	34	149	42
Active	8	11	124	44	132	38
Cancelled	10	15	61	22	71	20
<b>Sum</b>	<b>70</b>	<b>100</b>	<b>282</b>	<b>100</b>	<b>352</b>	<b>100</b>

$$\chi^2 = 38.417, df = 2, p < .001$$

**Figure 4.** Graphical representation of completion/non completion rates among students at the Office worker programme 2006-2009.

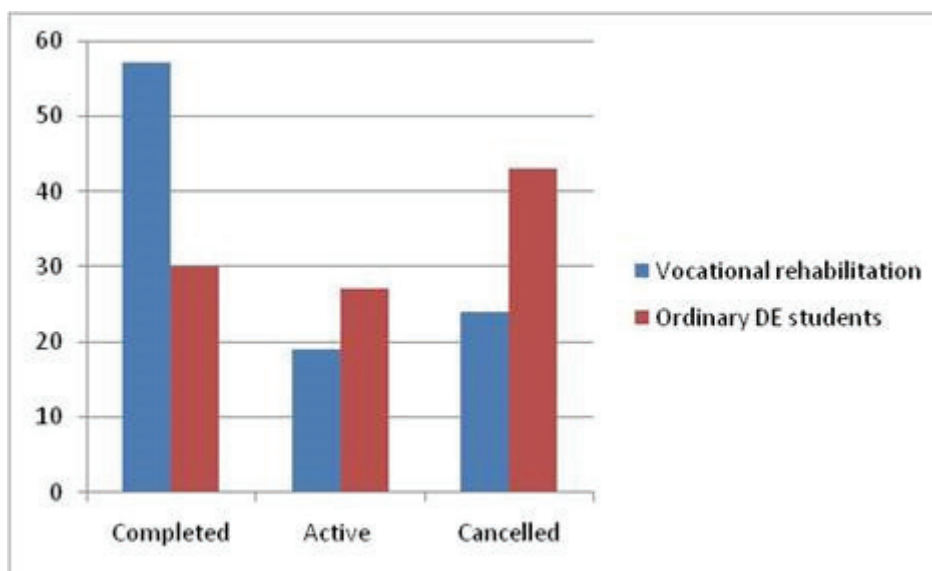


**Table 8.** Study status Oct. 2010 of enrollees to 35 selected study programmes 2008.

Study status	Vocational rehabilitation group		Ordinary individual DE students		Total	
	n	%	n	%	N	%
Completed	101	57	486	30	587	33
Active	34	19	428	27	462	26
Cancelled	43	24	686	43	729	41
<b>Sum</b>	<b>178</b>	<b>100</b>	<b>1600</b>	<b>100</b>	<b>1778</b>	<b>100</b>

$$\chi^2 = 51.118, df = 2, p < .001$$

**Figure 5.** Graphical representation of completion/non completion rates among students enrolled 2008 in the learning room and ordinary DE students in 35 selected study programmes.



The statistical data show higher completion rates and lower cancellation/withdrawal rates among the vocational rehabilitation students than among the ordinary online distance students at NKI. For the recruitment period 2006-2009 the difference is statistically significant for all four programmes examined. The same tendency is demonstrated when we examine the study status for students in all the 35 programmes for the recruitment year 2008.

**Conclusion:** The learning room solution, where vocational rehabilitation students in addition to individual online distance study participate in an organized local support system including physical attendance in a structured social learning environment with other learners, including ICT infrastructure, and technical, social and practical support, results in significant higher completion rates than among ordinary online distance students. Looking at the number of students in the two groups, who still are active studying, the data also indicate, that the rehabilitation students proceed at a quicker pace through their studies than do the ordinary online distance students.

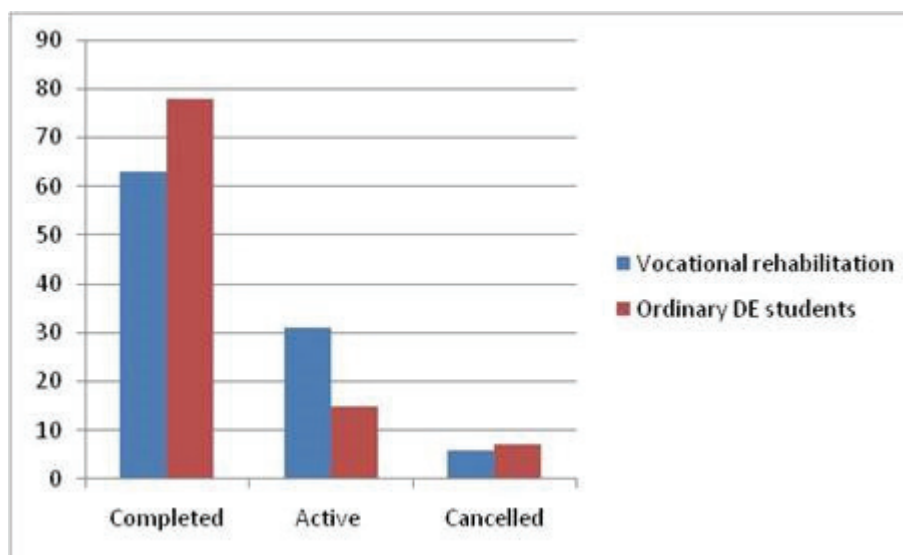
Some of NKI's most popular vocational study programmes can be studied in a blended learning solution where online learning is combined with local support and teaching in instructor led face-to-face classes. The local classes may be administered by a local study organisation or by a company organizing the local class for own employees. Statistics at NKI have clearly shown over time that blended learning, i.e. online learning with regular continuous attendance in face-to-face classes results in higher completion rates than pure individual online learning. The following tables and graphs show comparisons between the individual online rehabilitation students in the learning room with ordinary students participating in blended learning solutions. Except for the Accounting programme, which shows statistically significant better results among the ordinary blended learning students, the differences between the groups are small and not statistically significant. The statistics indicate that the rehabilitation students in the learning room achieve more like blended learning students than ordinary online distance students.

**Table 9.** Study status Oct. 2010 of enrollees to the Accounting programme 2006-2009.

Study status	Vocational rehabilitation group		Ordinary blended learning students		Total	
	n	%	n	%	N	%
Completed	51	63	76	78	127	71
Active	25	31	15	15	40	22
Cancelled	5	6	7	7	12	7
<b>Sum</b>	<b>81</b>	<b>199</b>	<b>98</b>	<b>100</b>	<b>179</b>	<b>100</b>

$$\chi^2 = 6.267, df = 2, p < .05$$

**Figure 6.** Graphical representation of completion/non completion rates among students in the learning room and blended learning students in the Accounting programme 2006-2009.

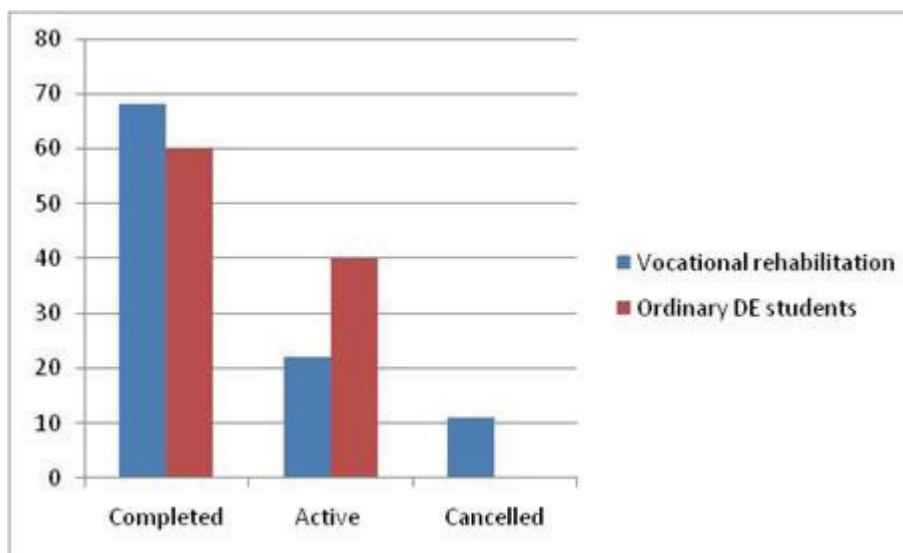


**Table 10.** Study status Oct. 2010 of enrollees to the Salary and Personnel programme 2006-2009.

Study status	Vocational rehabilitation group		Ordinary blended learning students		Total	
	n	%	n	%	N	%
Completed	13	68	9	60	22	65
Active	4	22	6	40	10	29
Cancelled	2	11	0	0	2	6
<b>Sum</b>	<b>19</b>	<b>101</b>	<b>15</b>	<b>100</b>	<b>34</b>	<b>100</b>

$\chi^2 = .261$ ,  $df = 1$  (Active/Cancelled combined because of small cell frequencies.) No significant difference.

**Figure 7.** Graphical representation of completion/non completion rates among students in the learning room and blended learning students in the Salary and Personnel programme 2006-2009.



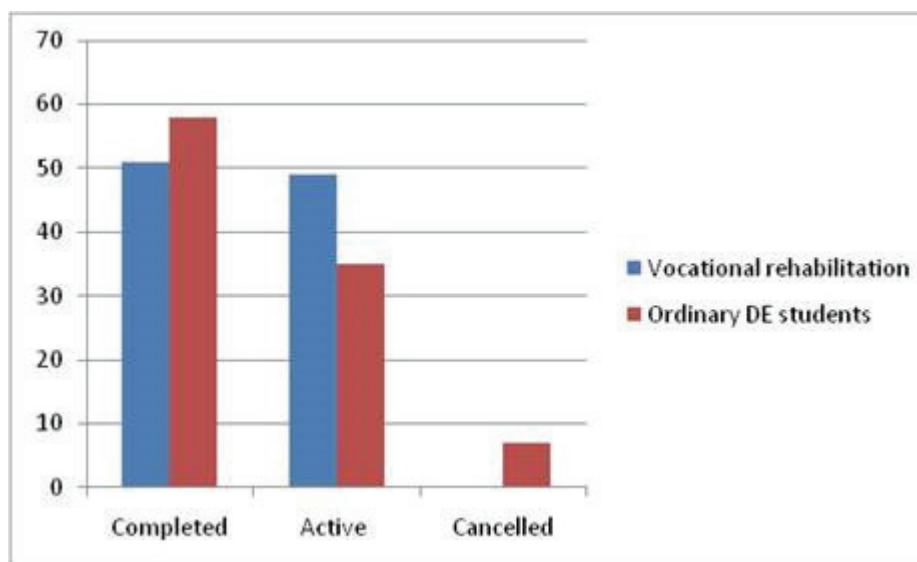
**Table 11.** Study status Oct. 2010 of enrollees to the Caretaker programme 2006-2009.

Study status	Vocational rehabilitation group		Ordinary blended learning students		Total	
	n	%	n	%	N	%
Completed	18	51	98	58	116	57

Active	17	49	59	35	76	37
Cancelled	0	0	11	7	11	5
<b>Sum</b>	<b>35</b>	<b>100</b>	<b>168</b>	<b>100</b>	<b>203</b>	<b>99</b>

$$\chi^2 = 3,031, df = 2, p > .20$$

**Figure 8.** Graphical representation of completion/non completion rates among students in the learning room and blended learning students in the Caretaker programme 2006-2009.



## Summary, conclusions and discussion

This study was initiated to evaluate the quality and success of online distance learning combined with support supplied by local vocational rehabilitation enterprises for students who take online courses for competence development in their endeavour to return to working life. The learning room solution was developed to support online vocational rehabilitation students.

As this group of students include many individuals with learning disadvantages, because of health problems and/or previous experiences of failure in the school system, it has been a great challenge to find adequate learning opportunities. Great differences in individual needs restrict enrolment possibilities in ordinary face-to-face classes or in blended learning solutions. Thus, online individual learning with free enrolment time and individual progression schedules has been considered to be a good solution. However, case handlers within the social security system have been reluctant to accept and finance online learning for this group, because experience has shown that many of these students have had great difficulties in succeeding in learning situations that require personal involvement, autonomy, and ability to plan and give priority to study without external pressure, control and structure.

As the learning room solution had been in operation for some years, and the solution was adopted by more and more vocational rehabilitation enterprises, it has been time to assess the solution for possibly further development. NKI has also been involved in developing the solution further for another target group with at least some similarities concerning learning needs and learning disadvantages, inmates in prisons.

The study included interviews with students, case handlers/consultants/managers in local Welfare and Labour Administration (NAV) offices, and with local counsellors/supervisors in the vocational rehabilitation enterprises. The interviews with all groups demonstrated that in general all parties find that individual online distance education functions well for this group of learners on the condition that they also participate in a structured environment of social, technological and practical support.

The study shows that with the adequate local support these students, in spite of the fact that they as a group has many characteristics of learning disadvantages, perform better than ordinary individual online distance learners.

As the actual support supplied may vary, according to local conditions, number of students, types of study programmes and individual student needs, it is not completely clear which aspects of the learning room characteristics that are most effective for student success.

The study gives a good platform for developing the learning room solution further, to expand the solution to other target groups, such as prison inmates, and to disseminate information to the public and organisations responsible for vocational rehabilitation activities. This year (2011) the Norwegian Association for Distance and Flexible Education (NADE) has together with the Association of

Rehabilitation Enterprises and NKI taken the initiative to a research and development project to explore the learning room concept further by collecting, analysing and distributing information on how the learning room solution is practised in different contexts and how the solution can be further developed to satisfy competence development needs of vocational rehabilitation users in possibly even better ways.

## Bibliography

- [1] Association of Rehabilitation Enterprises (2010): Diagnoses among rehabilitation users 2009. Unpublished data.
- [2] Banerjee, M. (2002): Distance Education and Accommodations for Students with learning disabilities: implications for postsecondary service providers. *International Dyslexia Association quarterly newsletter, Perspectives, Spring, 2002, vol. 28, no. 2, pp. 30-34.*
- [3] Brindley, J. E., Walti, C. & Zawacki-Richter (2004): The Current Context of Learner support in Open, Distance and Online Learning: An Introduction. In: Brindley, J. E., Walti, C. & Zawacki-Richter (eds.): *Learner Support in Open, distance and Online Learning Environments*. Oldenburg: Carl von Ossietzky Universität Oldenburg.
- [4] Bryman, A. (2001): *Social Research Methods*. Oxford: Oxford University Press.
- [5] Burgstahler, S. (2010): Real Connections: Making Distance Learning Accessible to Everyone. DO-IT Paper. University of Washington. <http://www.washington.edu/doit/Brochures/PDF/distance.learn.pdf> Retrieved 18.10.2010.
- [6] Burgstahler, S., Smith, J. & Coombs, N. (2002): Issues in Accessing Distance Education Technologies for Individuals with Disabilities. Utah State University. <http://staff.washington.edu/sherylb/summit.html> Retrieved 13.10.2010.
- [7] California Community Colleges (1999): Distance Education: Access Guidelines for Students with Disabilities. [http://www.htctu.net/publications/guidelines/distance\\_ed/distedguidelines.pdf](http://www.htctu.net/publications/guidelines/distance_ed/distedguidelines.pdf) Retrieved 13.10.2010.
- [8] Edmonds, C. D. (2004): Providing Access to Students With Disabilities in Online Distance Education: Legal and Technical Concerns for Higher Education. *The American Journal of Distance Education, 18(1), 51-62.*
- [9] Letrud, K., Baaberg, B. & Enge, T. (1997): *Tilrettelegging av fjernundervisning for voksne med lese- og skrivevansker*. Norwegian Centre for Distance Education. Bekkestua: NKI.
- [10] Lundberg, I. (1996): *Voksne med lese- og skrivevansker. En forskningsoversikt*. Norwegian Centre for Distance Education. Bekkestua: NKI.
- [11] Moisey, S. D. (2004): Students with Disabilities in Distance Education: Characteristics, Course Enrollment and Completion, and Support Services. *Journal of Distance Education. Revue de L'Éducation à Distance, Spring/Printemps 2004 Vol. 19, No 1, 73-91.*<http://auspace.athabasca.ca:8080/dspace/bitstream/2149/2081/1/characteristics.pdf> Retrieved 18.10.2010.
- [12] Mortensen, I. (2003): *Universell tilrettelegging av nettbasert studium i 'Organisasjon og ledelse'*. Bekkestua: NKI. [http://nettskolen.nki.no/forskning/soffrapport\\_universell.pdf](http://nettskolen.nki.no/forskning/soffrapport_universell.pdf) Retrieved 13.10.2010.
- [13] Nielsen, J. (2000): *Designing Web Usability: The Practice of Simplicity*. Indianapolis: New Riders Publishing.
- [14] Paist, E. H. (1995): Serving Students with Disabilities in distance Education Programs. *The Am. J. of Distance Ed. Vol. 9, No. 1. pp. 61-70.*
- [15] Rekkedal, T. (2004): Fjernstudenten – hvem er det? In: Støkken, A. M. & Wilhelmsen, J. (eds.): *Jeg har en motor inni meg som driver meg sjøl... Livet som voksen fleksibel student. pp. 21-42.* Tromsø: Norgesuniversitetet. <http://norgesuniversitetet.no/skrift/22004-jeg-har-en-motor-inni-meg-som-driver-meg> Retrieved 10.3.2011.
- [16] Rekkedal, T. (2009): *Læringsrommet – individuell kompetanseutvikling gjennom nettstudier og støtte i lokal attføringsbedrift. En intervjuundersøkelse blant deltakere, representanter for attføringsbedrifter og NAV-konsulenter*. Bekkestua: NKI. <http://www.nki.no/content/download/184955/1192963/version/1/file/Laeringsrommet2009.pdf> Retrieved 6.10.2010.
- [17] Roberts, J. & Crittenden, L. (2009) Accessible Distance Education 101. *Research in Higher Education Journal, Vol. 4.*<http://www.aabri.com/manuscripts/09141.pdf> Retrieved 18.10.2010.
- [18] Shonfeldt, M. & Ronen, I. (2009): Online learning: Variations in groups of participants and tools. Paper to the 2009 EDEN Annual Conference, Innovation in Learning Communities, Gdansk, 10-13 June 2009.
- [19] TRACE Center (2010): Designing more usable documents (Web page). Madison: University of

Wisconsin. [http://trace.wisc.edu/world/doc\\_access/index.htm#dist-ed](http://trace.wisc.edu/world/doc_access/index.htm#dist-ed) Retrieved 13.10.2010.

[20] W3C (2010): Web Accessibility Initiative. <http://www.w3.org/WAI/> Retrieved 18.10.2010.