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# Approaches to Studying: A Cross-Sectional Comparison of Occupational Therapy Students in Six Education Programs in Norway

## Abstract

Students' approaches to studying have been associated with their academic performance. Although previous research suggests that the cultural and educational context may influence approaches to studying, few studies have investigated differences in study approaches across education programs. The aim of this study was to examine whether approaches to studying differed among occupational therapy students enrolled in six different educational programs in Norway. From a population of 308 students, 187 first-year occupational therapy students in six educational programs in Norway were recruited. The students provided their sociodemographic information and completed the Approaches and Study Skills Inventory for Students (ASSIST), and group differences were analyzed with Chi-square tests and one-way analyses of variance. Scores on the deep and surface approach scales did not differ significantly among the students in the six educational programs, while there was an overall difference in scores on the strategic approach scale. Group differences regarding the subscales were minor, and only a few of the pairwise differences reached statistical significance. Differences at the education program level appear not to be important for the interpretation of differences in study approaches among students.

## Comments

The authors report that they have no conflicts of interest to disclose.

## Keywords

first-year students, higher education, learning context

## Cover Page Footnote

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Occupational therapy is a practice-based and skills-oriented profession. The World Federation of Occupational Therapists (WFOT) states that to become a competent and effective occupational therapist, students are required to develop professional skills, knowledge, and attitudes (World Federation of Occupational Therapists, 2016). However, occupational therapy students should also be able to develop their expertise and competence even after graduation. Continuously developing as a professional includes reflecting on one's own learning needs and knowledge gaps and critically assessing one's current practices (Coffelt & Gabriel, 2017). To achieve the competence level required of occupational therapists, students must develop study approaches that support their comprehensive understanding. Study approaches that involve students critically reflecting and connecting theoretical perspectives and practice could be more suitable than memorization and the performance of more or less automated actions. Thus, to foster competent occupational therapists, occupational therapy education programs should encourage students to develop an approach to studying characterized by reflection and curiosity and support them in becoming lifelong learners with a high level of self-reflection.

Approaches to learning are based on the student's intention, what the student is learning (the content), and where the learning takes place (the context) (Entwistle, 2007). In other words, learning is situated. The literature often refers to three qualitatively different approaches to studying: the deep, the surface, and the strategic approaches (Entwistle, 2007). The deep approach to studying is associated with seeking meaning and developing a personal understanding of ideas. In contrast, a surface approach to studying involves reproducing content with the intention to cope with course requirements. The strategic approach is characterized by putting efforts into organized studying. The intention of a strategic student is to do well in a course and/or achieve personal goals. Occupational therapy programs should encourage deep and strategic approaches to studying, and they should discourage a surface approach to studying. By doing so, students will be better trained in how to study and will more likely become lifelong learners.

Previous research suggests that students' approaches to studying play a significant role in determining their learning outcomes (Bonsaksen et al., 2017; Brown & Murdolo, 2017). For example, there seems to be a strong relationship between the surface and nonstrategic approaches and poor academic performance, whereas the deep approach has been linked to high academic performance (Entwistle, 2000). Bonsaksen and colleagues found that several subscales related to each study approach predicted academic performance largely, but not entirely, in line with the theoretical assumptions among occupational therapy students in four countries (Bonsaksen, Brown, et al., 2017). They also concluded, however, that more comparative research is needed in this area.

A cross-sectional study was conducted to examine and compare approaches to learning adopted by occupational therapy students studying in the United Kingdom and Bangladesh (Watson et al., 2006). The researchers found statistically significant differences between the students in the two countries, in which the Bangladesh students demonstrated a greater tendency toward deep learning in the first year of education. The authors concluded that although cultural groups are not homogeneous, culture has an influence on students' approaches to learning (Watson et al., 2006). In a related vein, the relationships between students' approaches to studying and their academic grades have been shown to vary between countries with different cultural contexts. A recent study found that approaches to studying were relevant for understanding academic performance among occupational therapy students in Norway and Hong Kong, while they appeared less useful in the Australian and Singaporean contexts (Bonsaksen et al., 2019). Another study from South Africa was conducted to explore the learning style preferences of the students and provide them with insight into their own learning style profile (Rudman et al., 2015). The results showed that the students preferred

concrete experiences, receiving visual inputs, being actively engaged in the learning process, and experiencing a logical linear progression in the teaching activities. Making their learning style profile known to the students stimulated a deep approach to learning, the researchers argued (Rudman et al., 2015).

In Norway, there are six occupational therapy education programs. All occupational therapy programs in Norway have a duration of 3 years. The first year in all programs consists of courses in occupational therapy theories, central concepts, anatomy, and physiology. However, while the total time in field placement is similar between the education programs, the distribution of field placements across the three study years differs among the programs. Although all of these programs build on and are regulated by the national qualification framework (Ministry of Education and Research, 2014), educational institutions are relatively free to adapt the program according to local and regional needs. Therefore, the programs differ in terms of the number of students, educational platform, admission requirements, and field placement (see Table 1). Moreover, some of the study programs have existed for more than 60 years, whereas others have been established more recently. All of these differences may contribute to students at different educational programs adopting different approaches to studying.

**Table 1**  
*Descriptions of the Education Programs*

Characteristics	Oslo	Bergen	Trondheim	Sandnes	Tromsø	Gjøvik
Number of first-year students in 2017	76	45	77	47	24	39
Year the program was established	1952	1993	1974	2001	1990	2013
Degree offered at the educational institution	Bachelor and master program in occupational therapy, PhD program in health sciences	Bachelor program in occupational therapy and PhD program in health sciences	Bachelor in occupational therapy, master program in physical activity and health, occupational science	Bachelor in occupational therapy, master's of citizenship and interaction sciences, PhD program in diakonia, values and professional practice	Bachelor in occupational therapy, master and PhD program in health science	Bachelor in occupational therapy, master program in public health
Length of field placement, first year	3 days	3 days (1st semester) and 7 weeks (2nd semester)	1 day a week for 10 weeks (1st semester), 1 week (2nd semester)	2 days a week for 10 weeks (2nd semester)	3 days (1st semester) and 8 weeks (2nd semester)	5 weeks
Pedagogical framework	Diverse, but emphasizing the sociocultural perspective of learning	Diverse, but emphasizing team-based learning and problem-based learning	Team-based learning and problem-based learning	Case-based learning, team-based learning and problem-based learning	Problem-based learning and case-based learning	Team-based learning and problem-based learning
Grade point average required for admission in 2017	47.0	46.5	44.2	43.8	50.6	44.3

The results from previous studies of study approach differences across educational programs and cultural contexts have been somewhat conflicting. In a Danish study across seven occupational therapy educational programs, significant differences were found in only two of the study approach subscales: “monitoring effectiveness” and “lack of purpose” (Richardson et al., 2005, p. 115). More recently, in a cross-cultural study of occupational therapy undergraduate students in four countries, the researchers found significant differences between the countries in the surface approach scale and six of the subscales, suggesting that culture and educational context impact students’ approaches to studying (Brown, Fong, et al., 2017). Thus, we hypothesized that differences in approaches to studying would be found across the involved occupational therapy programs. A deeper understanding of first-year occupational therapy students’ study habits may enable educators to adjust teaching practices or course structures to ensure that the education program is user-centered and represents a constructive learning environment. We have been unable to locate published research that has systematically examined differences in approaches to studying between groups of occupational therapy students in Norway. This study seeks to close this knowledge gap by exploring approaches to studying among first-year students across all occupational therapy education programs in Norway. More knowledge about the differences and similarities between educational programs can help identify unwanted differences between programs and identify areas of quality improvement.

### **Study Aim**

The aim of the current study was to examine whether approaches to studying differed between occupational therapy students enrolled in six different educational programs in Norway.

## **Method**

### **Design and Study Context**

This article reports on a preliminary, cross-sectional survey study related to a longitudinal inquiry into the learning environment and approaches to studying as perceived by occupational therapy students in Norway. The study employed data from the students during their first year of study. The data were collected between December 2017 and March 2018.

### **Ethics**

Approval for collecting, storing, and using the data was granted on October 12, 2017, by the Norwegian Center for Research Data (project no. 55875). The students were informed that completion of the questionnaires was voluntary, that their responses would be treated in confidence, and that there would be no negative consequences for opting not to participate in the study. Written informed consent was provided by all of the participants.

### **Participants, Recruitment, and Response Rate**

At each of the six higher education institutions providing occupational therapy training in Norway, occupational therapy students enrolled in the first study year were invited to participate. A member of the faculty distributed the survey to the students at a designated time, and the participants filled out the form by paper and pencil during a 45-min classroom session. A small number of students requested and were granted more time to complete the survey on their own.

### **Measurement**

Data related to the students’ approaches to studying were obtained from the Approaches and Study Skills Inventory for Students (ASSIST) (Tait et al., 1998). The ASSIST is frequently used with students in higher education and may serve as a tool to identify students who experience problems with studying. Given the purpose of this study, which was to investigate students’ perceptions of their own study behaviors, the ASSIST was considered the most appropriate tool. In the current study, we used a previously validated Norwegian version of the 52-item ASSIST questionnaire (Diseth, 2001).

As established from prior psychometric studies, the ASSIST items are organized into three main factors: the deep, strategic, and surface approaches (Byrne et al., 2004; Reid et al., 2005). The three approaches comprise several subscales, each of which has four items. The deep approach consists of four subscales (seeking meaning, relating ideas, use of evidence, and interest in ideas); the strategic approach consists of five subscales (organized study, time management, alertness to assessment demands, achieving, and monitoring effectiveness); and lastly, the surface approach consists of four subscales (lack of purpose, unrelated memorizing, syllabus-bound, and fear of failure). The original English language ASSIST scales have demonstrated good internal consistency of the main scales (Cronbach's  $\alpha$  ranging 0.61-0.88) when used with students in different academic and professional areas (Ballantine et al., 2008; Brodersen, 2007; Brown et al., 2014; Byrne et al., 2004; Reid et al., 2005). The Norwegian language ASSIST, explored with factor-analytic procedures (Bonsaksen et al., 2019) and structural equation modeling (Diseth, 2001), has yielded the same three latent factors (deep, strategic, and surface approaches). In this study, internal consistency estimates (Cronbach's  $\alpha$ ) for the study approach scales were 0.71 (deep approach), 0.84 (strategic approach), and 0.76 (surface approach).

In addition to completing the ASSIST, the participants provided information regarding their demographics (age and gender) and education (prior higher education and time spent self-studying during a normal week) as part of the questionnaire.

### Data Analysis

All data were entered into the computer program IBM SPSS (IBM Corporation, 2016). Descriptive analyses were performed on all variables using means ( $M$ ), standard deviations ( $SD$ ), frequencies, and percentages as appropriate. Differences in background variables between students enrolled at different universities were investigated with Chi-square tests for categorical variables and with one-way analyses of variance (ANOVA) for continuous variables. A series of ANOVAs was conducted to examine whether students in the different universities differed systematically on their scores on the ASSIST scales and subscales. In cases of statistically significant ANOVA results, post-hoc analyses using the Tukey honest significant difference (HSD) test were conducted to identify the nature of the differences. The internal consistency of the main scales was checked with Cronbach's  $\alpha$ . The level of statistical significance was set at  $p < 0.05$ .

## Results

### Participants

From the six education programs, 308 students were eligible participants, and of these students, 187 (response rate 60.7%) chose to participate. For each of the institutions, the response rates were  $24/76 = 31.6\%$  in Oslo,  $56/77 = 72.7\%$  in Trondheim,  $19/39 = 48.7\%$  in Gjøvik,  $31/47 = 66.0\%$  in Sandnes,  $24/24 = 100.0\%$  in Tromsø, and  $33/45 = 73.3\%$  in Bergen. The participant characteristics are shown in Table 2. The questionnaires were completed and returned by 187 students across the six education programs. The students in Oslo had the highest mean age; these students were significantly older than the students in Trondheim ( $p < 0.01$ ) and Sandnes ( $p < 0.01$ ). Time spent on self-study differed substantially between the groups of students. The students in Gjøvik spent the most time on self-study during a typical week; they spent significantly more time on self-study than all other students (all  $p \leq 0.01$ ) except those from Bergen ( $ns$ ). In addition, the students in Bergen spent significantly more time on self-study compared to the students in Trondheim ( $p < 0.05$ ). Otherwise, the differences between the groups of students were not statistically significant.

**Table 2**  
*The Students' Demographic Characteristics by Education Program*

Characteristics	Education program							<i>p</i>
	All ( <i>n</i> = 187)	Oslo ( <i>n</i> = 24)	Bergen ( <i>n</i> = 33)	Trondheim ( <i>n</i> = 56)	Sandnes ( <i>n</i> = 31)	Tromsø ( <i>n</i> = 24)	Gjøvik ( <i>n</i> = 19)	
Age (M [SD])	22.9 (4.6)	25.8 (6.9)	22.8 (4.6)	22.0 (1.9)	21.5 (3.3)	24.3 (7.1)	22.5 (3.0)	< 0.01
Female gender ( <i>n</i> [%])	149 (80.1)	19 (79.2)	28 (84.8)	43 (78.2)	27 (87.1)	16 (66.7)	16 (84.2)	0.48
Prior higher education ( <i>n</i> [%])	78 (41.9)	12 (50.0)	17 (51.5)	25 (45.5)	11 (35.5)	9 (37.5)	4 (21.1)	0.28
Time spent on self- study (M [SD])	9.3 (7.0)	9.2 (6.3)	11.6 (8.4)	7.3 (3.9)	7.0 (3.4)	8.9 (9.2)	16.1 (8.3)	< 0.001

*Note.* Statistical test of differences are ANOVA *F*-test for age and time spent on self-study, and  $\chi^2$  for gender and prior higher education. *M* = Mean; *SD* = Standard Deviation. *P*-values indicate the probability of overall differences between the groups of students. Prior higher education indicates the number/proportion of students who reported having higher education prior to starting their current line of study. Time spent on self-study indicates the number of hours spent during a typical week.

### ASSIST Scale Scores

The mean ASSIST scores for all students and in each of the program-specific subsamples are shown in Table 3. Scores on the deep approach scale and its related subscales did not differ significantly between students at the six educational institutions. There was an overall difference between the groups of students on the strategic approach scale ( $p < 0.05$ ); however, none of the pairwise comparisons revealed significant differences. Related to the strategic approach, overall significant differences were found on the “alertness to assessment demands” ( $p < 0.01$ ) and “achieving” ( $p < 0.01$ ) subscales. None of the pairwise differences on “alertness to assessment demands” reached statistical significance, whereas the students in Bergen had lower scores on “achievement” than the students in Sandnes ( $p < 0.01$ ) and Trondheim ( $p < 0.05$ ). The students' scores on the surface approach scale were not significantly different among the universities. An overall difference was shown for the “lack of purpose” subscale, and the pairwise comparisons revealed significantly higher scores on this scale among the students in Bergen than among those in Trondheim ( $p < 0.05$ ).

**Table 3**  
*The Students' Approaches to Studying: Scores on Scales and Subscales by Education Program*

ASSIST scales	ASSIST subscales	Education program							<i>p</i>
		All ( <i>n</i> = 187)	Oslo ( <i>n</i> = 24)	Bergen ( <i>n</i> = 33)	Trondheim ( <i>n</i> = 55)	Sandnes ( <i>n</i> = 31)	Tromsø ( <i>n</i> = 24)	Gjøvik ( <i>n</i> = 19)	
Deep approach		56.6 (8.6)	56.5 (8.6)	56.1 (8.3)	59.1 (9.9)	54.1 (6.3)	55.7 (7.9)	55.1 (8.5)	0.14
	Seeking meaning	14.8 (3.9)	14.4 (2.5)	14.5 (2.0)	15.8 (6.1)	14.2 (2.6)	14.6 (2.5)	14.2 (2.6)	0.38
	Relating ideas	13.8 (2.9)	13.5 (3.5)	13.9 (2.9)	14.2 (2.7)	12.7 (2.5)	14.1 (3.0)	13.8 (3.2)	0.28
	Use of evidence	14.3 (2.2)	14.3 (2.0)	14.1 (2.3)	14.7 (2.2)	14.2 (1.8)	13.6 (2.3)	14.3 (2.5)	0.51
	Interest in ideas	13.7 (2.7)	14.2 (3.2)	13.7 (3.0)	14.4 (2.8)	13.1 (2.2)	13.3 (2.7)	12.8 (2.1)	0.11
Strategic approach		72.1 (10.3)	69.7 (9.1)	69.0 (12.1)	73.8 (10.4)	74.5 (9.1)	69.0 (9.9)	75.3 (8.5)	< 0.05
	Organized study	12.9 (3.0)	12.4 (3.2)	12.8 (3.0)	13.1 (3.2)	12.9 (2.6)	12.1 (2.8)	14.6 (2.8)	0.12

Time management	13.3 (3.2)	12.8 (2.7)	12.8 (3.5)	13.6 (3.1)	13.9 (3.0)	12.2 (3.7)	14.3 (2.6)	0.17
Assessment demands	15.2 (2.6)	14.5 (2.7)	14.7 (2.6)	16.1 (2.6)	16.0 (2.3)	14.6 (2.5)	14.3 (2.2)	< 0.01
Achieving	14.4 (2.8)	14.0 (2.9)	12.8 (3.6)	14.9 (2.4)	15.4 (2.4)	14.3 (2.8)	14.6 (2.4)	< 0.01
Monitoring effectiveness	16.2 (2.3)	15.8 (2.1)	15.9 (2.5)	16.3 (2.3)	16.3 (2.1)	15.8 (2.6)	17.5 (1.9)	0.14
Surface approach	47.3 (9.2)	47.1 (9.3)	47.8 (10.5)	45.5 (9.8)	47.6 (8.7)	48.4 (7.2)	50.5 (8.2)	0.43
Lack of purpose	8.7 (3.2)	8.6 (3.5)	9.8 (3.6)	7.7 (2.5)	8.3 (3.1)	9.7 (3.3)	9.4 (3.6)	< 0.05
Unrelated memorizing	11.6 (3.1)	11.4 (2.8)	11.5 (4.5)	11.7 (3.1)	11.8 (2.6)	10.9 (2.2)	12.1 (3.0)	0.87
Syllabus-bound	13.6 (3.0)	13.3 (2.5)	12.7 (3.2)	13.7 (2.9)	14.1 (3.2)	14.0 (2.8)	14.2 (3.0)	0.39
Fear of failure	13.5 (4.0)	13.8 (3.7)	13.9 (3.7)	12.4 (4.4)	13.4 (4.0)	13.8 (3.8)	14.9 (3.0)	0.22

Note. ASSIST = Approaches and Study Skills Inventory for Students. Table content is mean scores (*M*) and standard deviation (*SD*). P-values indicate the probability of overall differences between the students at the six education programs, as indicated by the ANOVA *F*-test.

## Discussion

The aim of this study was to examine whether approaches to studying differed between occupational therapy students in six different educational programs in Norway. Few differences were found to be statistically significant, indicating that differences at the education program level contribute very little in explaining differences in approaches to studying between occupational therapy students in Norway.

In this study, we found that students from Bergen scored lower on the achieving scale than the students from Sandnes and Trondheim, and the students from Bergen also scored higher on lack of purpose than the students from Trondheim. One can speculate whether lower ambition among the students, as indicated by the lower “achieving” scores, might be related to a lack of purpose, which could explain these findings. However, prior studies of relationships between ASSIST scales and subscales have largely employed factor-analytic designs, examining how the subscales have loaded onto the main scales (Bonsaksen et al., 2019; Byrne et al., 2004; Diseth, 2001). Possible associations between subscales belonging to different study approaches appear to be less explored, suggesting a venue for further research.

Overall, however, the results showed that approaches to studying were fairly similar between the educational programs. This is interesting, as the six programs adopt different pedagogical frameworks and differ in several other ways. For example, one could imagine that having fewer students in the class may facilitate closer collaboration among students and between students and lecturers. However, we did not find that students enrolled in education programs with fewer students, such as the students in Tromsø or Gjøvik, reported higher scores on the deep approach than the students in the other education programs. One possible explanation for this may be that approaches to studying are less influenced by environmental factors than we hypothesized at the beginning of this study. Research has found study approaches to be associated with individual characteristics such as age, gender, and self-efficacy beliefs (Bonsaksen et al., 2017), and it has been theorized that approaches to studying may already be established in higher education students as a result of study habits developed during elementary and secondary education (Reid et al., 2012). The current survey was conducted while the students were in the first year of a 3-year education program, so variations in approaches to studying that may be attributed to study environments may not be traceable until later in the program. The results may also reflect the notion that approaches to studying may vary



more among cultural contexts (Brown & Murdolo, 2017) and less among study programs in the same cultural context (Richardson et al., 2005).

Learning is situated in a given context. Thus, although they may be developed as early as in elementary and secondary education (Reid et al., 2012), approaches to studying are not fixed but can change over time. Approaches to learning should be viewed not as static characteristics inherent in a person but rather as dynamically interwoven with contextual influences. Although the results of this study underscore similarities rather than differences among the study programs, this may change later in the study trajectory. As the students grow more familiar with their chosen line of study, they may be more or less inclined to adopt each of the study approaches, depending on how contextual influences play out over the course of the study program. One study showed that fourth-year occupational therapy students scored significantly lower on the deep and strategic study approaches than first-year students (Brown & Murdolo, 2016). On the other hand, comparisons among three cohorts of occupational therapy students in Norway yielded contrasting results (Bonsaksen et al., 2017), as the scores (with very few exceptions) were similar between the cohorts. Nonetheless, as both of the previous studies were cross-sectional comparisons of students in different year cohorts, future studies may focus on investigating potential within-person changes over time and exploring factors that can predict change in approaches to studying. Another aim for future studies will be to investigate whether differences in approaches to studying between study programs are noticeable at the end of the study trajectory.

### **Study Limitations**

The sample from the present study was recruited from all six existing occupational therapy education programs in Norway. The strengths of this study include its high response rate, where the sample size was sufficient for the intended analytic procedures. The response rate, however, varied substantially across the universities, with Oslo having the poorest response rate. Therefore, generalizing the findings to the larger population of Norwegian occupational therapy students should be done with caution. The mean student age was significantly higher in Oslo than in Trondheim and Sandnes, whereas other differences between the students in Oslo and those in the other education programs were not significant. In addition, the students in Tromsø (100% response rate) did not differ significantly from the other universities, which counts in our favor regarding possible measurement error because of differing response rates.

This study is based on students' self-reported data only. Because self-reported information is known to be a source of measurement error, this limitation must be considered. There is a possibility that some responses were biased by social desirability; that is, some of the provided responses may have been influenced by the students' perceptions of what a normatively prescribed response would be. In addition, a selection bias could have been present during the inclusion of participants at the beginning of the study (i.e., students who chose to participate in the study may have been different in some respects compared to nonparticipants). The relatively long period used to collect the data, with most study programs collecting data between December 2017 and January 2018, and one program collecting data in March 2018, may have altered the results.

### **Conclusion**

This study aimed to examine whether approaches to studying differed among occupational therapy students enrolled in six different education programs in Norway. Few and largely negligible differences were found. Considering the study results together with those of previous studies, occupational therapy students' approaches to studying appear to be related to individual student characteristics and to the larger cultural context of their study program. Differences at the education program level in the Norwegian culture appear not to be important for the interpretation of

differences in study approaches among students. This study is the first to investigate differences among first-year occupational therapy students enrolled in the six education programs in Norway, and the results add to the existing research in the field by underscoring similarities rather than differences among the study programs.

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