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Differences in Approaches to Learning Between Occupational Therapy Students in the USA and Norway

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ABSTRACT

Students approach learning in different ways, and this study aimed to examine and understand differences in learning approaches between occupational therapy students in Norway and the USA. A total of 321 students, from two universities in the USA and six higher education institutions in Norway, completed the short version of the *Approaches and Study Skills Inventory for Students*. The data were analyzed with linear regression analyses. U.S. students had substantially higher scores on the strategic approach and higher scores on the deep approach, compared to the Norwegian students. Differences may be due to different national regulations and levels of education required for entering the programs, or personal factors such as predisposition for learning.

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Approaches to learning; cross-national study; higher education; occupational therapy; students

Introduction

Higher education students use diverse learning styles and approach learning in different ways. Much of the research on students' approaches to learning originated in Sweden, where Marton and Säljö (1976) identified the deep and surface approaches to learning. These researchers advised higher education teachers to facilitate and support students' use of a deep approach to learning. In so doing, faculty could enable students' understanding of concepts and retention of knowledge for future application. The term *approaches to learning* was introduced to demonstrate how intention and process are combined in students' learning (Entwistle & Peterson, 2004).

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The basic distinction between the deep and surface approaches to learning is rooted in different conceptions of what learning is and what it is for. While students using a deep approach aim to understand concepts and relate them to one another, students using a surface approach instead aim to memorize and reproduce materials for exams (Biggs, 1999; Ramsden & Entwistle, 1981). The strategic approach, which was introduced later (Entwistle & McCune, 2004), is concerned with the effective organizing of the learning process, as opposed to the levels of engagement in learning encompassed by the deep and surface approaches. Students who use the strategic approach tend to assess perceived learning demands of the environment and organize and plan their work with the goal of achieving success (Entwistle, 2018).

The extent to which approaches to learning are mostly influenced by individual elements such as students' demographic background, or by contextual elements such as the learning environment, is debated (Postareff et al., 2014; Vanthournout et al., 2013). However, studies seem to indicate that individual and contextual elements are both influential. For example, studies have shown that higher age is associated with higher scores on the deep approach and lower age is associated with higher scores on the surface approach (Beccaria et al., 2014; Douglas et al., 2020; Mørk et al., 2022; Rubin et al., 2018). In several studies, higher scores on the strategic approach to learning have been related to female gender (Bonsaksen et al., 2017; Mørk et al., 2023; Nguyen, 2016). Among contextual elements, studies have shown that various learning environment factors, such as clarity of standards, student autonomy, and workload perceptions, have been associated with ratings on the learning approach scales (Diseth, 2007; Mørk et al., 2020; Mørk et al., 2023; Nijhuis et al., 2008).

Learning approaches may also be influenced by the norms and values embedded in education programs in the relevant region or country, which provides the wider cultural context for students' learning. Partly in support of such differences, Flemish social science students were shown to adopt the surface learning approach to a greater degree than Chinese students, while their levels on the deep and strategic approaches were similar (Zhu et al., 2008). Relating to occupational therapy education, one previous cross-cultural study found that students in Australia, Norway, Hong Kong, and Singapore had similar scores on the deep learning approach but differed with regards to their scores on the strategic and surface approaches (Brown et al., 2017). However, the study employed no adjustment for potential confounding factors, and students in all involved countries were undergraduate students.

Educational systems themselves may influence approaches to learning. For example, entry-level practice of occupational therapy in the U.S. requires a graduate level education, for which acceptance rates are a

competitive 17% (Bowyer et al., 2018). Occupational therapy programs must follow strict standards of The Accreditation Council for Occupational Therapy Education (ACOTE®) that require students to demonstrate advanced knowledge in multiple areas of the physical and social sciences. Programs must make clear in which classes these standards are being addressed and be able to show evidence of how students are meeting them (ACOTE, 2018). According to the American Occupational Therapy Association (AOTA), graduates must pass the National Board for Certification in Occupational Therapy's (NBCOT®) standardized examination before they can seek licensure to practice professionally (AOTA, 2023). These added steps and requirements, which total two to three years of schooling beyond the bachelor's level, may require that occupational therapy students in the U.S often employ a strategic learning approach (DaLomba et al., 2021). In Norway, occupational therapy education programs constitute a bachelor's degree with a duration of three years. All three years incorporate subjects specifically intended for occupational therapy students, with few elective subjects. The study program ends with the students writing a bachelor's thesis and most graduates start immediately to work as an occupational therapist following graduation. To obtain a license for practising, candidates must apply for authorization as healthcare personnel at The Norwegian Directorate of Health. Authorization requires a pass only (on all the exams in the diploma) and does not consider grade point averages. A handful of the candidates continue to master's degree studies. Norwegian programs are regulated by the National Qualification Framework (Ministry of Education and Research, 2014), and since 2019 followed the *National guideline for occupational therapist education* (Regulation for the occupational therapist education in Norway, national guideline, 2019). The purpose of the guideline is to ensure national equivalence in the candidates' professional level by graduation.

Studies incorporating education programs at different levels and in different countries, as well as possibilities for adjustment, are needed to gain new insight into the factors of importance for occupational therapy students' learning approaches. Thus, the aim of this study was to examine differences in learning approaches between occupational therapy students in Norway and the USA, while adjusting for age and gender.

Materials and methods

Design and study context

The design was a cross-sectional explorative study. Students (total $n = 321$) were recruited from two universities in the USA ($n = 154$) and from six

higher education institutions in Norway ($n = 167$). The data from the Norwegian sample were collected about midway in the students' second study year (between December 2018 and February 2019). The American sample consisted of students at two universities. One was a private health sciences university in Philadelphia, PA, where data were collected in the fall 2018 in the students' first and second year. These students were comprised of both masters' and entry-level doctoral occupational therapy students. Data were also collected from entry-level doctoral students at a health sciences university in California early in the students' first year, fall semester of 2019.

All students were appropriately informed about the study and volunteered to participate. Written informed consent was provided from all participants. In Norway, approval to collected, store, and analyze the data was provided by the Norwegian Center for Research Data (protocol code: 55875). In the USA, approval was granted by the Samuel Merritt University Institutional Review Board (protocol code: SMUIRB#1923) and the University of the Sciences Institutional Review Board (protocol code: IRB # 1337139).

Measurement

Sociodemographic variables were age group (under 30 years of age versus 30 years or above) and gender (male versus female). Approaches to learning were measured using the short version of the *Approaches and Study Skills Inventory for Students* (ASSIST) (Entwistle et al., 2013). The ASSIST is a self-report scale that asks students to rate their level of agreement with 18 items addressing a variety of study attitudes and behaviors, using a five-point Likert scale to assess each item (1 = disagree, 2 = disagree somewhat, 3 = unsure, 4 = agree somewhat, 5 = agree) (Entwistle et al., 2013). The items are organized into three scales representing the deep, strategic, and surface approaches to studying. Example items are "When I read, I examine the details carefully to see how they fit in with what's being said" (deep approach), "I work steadily through the term or semester, rather than leave it all until the last minute" (strategic approach), and "I often have trouble in making sense of the things I have to remember" (surface approach). Internal consistency measures for the deep approach scale were Cronbach's α 0.58 (mean inter-item correlation 0.19), while the corresponding measures for the strategic and surface approach scales were Cronbach's α 0.79 (mean inter-item correlation 0.39) and Cronbach's α 0.64 (mean inter-item correlation 0.27), respectively.

The American students used the original English version, while the Norwegian students used a previously validated Norwegian translation of the instrument (Bonsaksen, 2018; Diseth, 2001). Information regarding age and gender was collected as part of the questionnaire.

Data analysis

Differences in proportions (age group × country, and gender × country) were analyzed with Pearson's Chi Square tests. The factor structure of the three ASSIST scales were examined with confirmatory Principal Components Analysis (PCA) (Pett et al., 2003), using a fixed three-factor solution representing the deep, strategic, and surface approach scales. In the preliminary analysis, 17 of the 18 ASSIST items loaded as expected on the three factors, whereas item #4 cross-loaded. After the removal of item #4, all items loaded substantially (i.e. >0.50) on the three factors as expected from theory (Factor 1: $\lambda = 3.75$, 22.0% explained variance; Factor 2: $\lambda = 2.23$, 13.1% explained variance; Factor 3: $\lambda = 1.51$, 8.9% explained variance; total explained variance 44.1%). Scale scores were computed as the mean item score for items belonging to the respective scale (range 1–5). Scale reliability was examined with Cronbach's α and with mean inter-item correlations (Ponterotto & Ruckdeschel, 2007; Streiner, 2003; Streiner et al., 2014).

No significant differences in scale scores were detected between students from Philadelphia and students from Oakland; hence, the students from these universities in the USA were collapsed into one group in the subsequent analyses. Independent *t*-tests were used to examine differences in scale scores between students from the USA and Norway, where Cohen's *d* was used as effect size (Cohen, 1992). Multivariate linear regression analyses were used to examine associations between age group, gender, country, and the study approach scales. Preceding the regression analyses, multivariate normality was visually inspected and confirmed, all VIFs were between 1.02 and 1.06, and all standardized residuals were within the recommended range (−3, 3) (Field, 2018). Effect sizes were standardized β values, and statistical significance was set at $p < .05$.

Results

Participants

Table 1 displays the participant age and gender distributions in Norway and the USA.

Approaches to learning

Table 2 displays the mean ASSIST scale scores among the students in the two countries.

The results of the linear regression analysis, examining associations between country and ASSIST scores while adjusting for age and gender, are displayed in Table 3. Being an American student ($\beta = -0.42$, $p < .001$)

Table 1. Age and gender distributions of occupational therapy students in the two countries.

	USA	NORWAY	
	n/total (%)	n/total (%)	*p*
Age			
<30 years	140/154 (90.9)	155/167 (92.8)	0.53
30 years or above	14/154 (9.1)	12/167 (7.2)	
Gender			
Male	15/154 (9.7)	33/167 (19.8)	0.01
Female	139/154 (90.3)	134/167 (80.2)	

Note. Statistical test is Chi Square test.

Table 2. The occupational therapy students' mean ASSIST scale scores in two countries.

	USA	NORWAY		
	M (*SD*) [*n*]	*M* (*SD*) [*n*]	*P*	*ES*
Deep approach	3.58 (0.60) [155]	3.42 (0.58) [162]	0.02	0.27
Strategic approach	3.99 (0.69) [156]	3.29 (0.75) [167]	< 0.001	0.97
Surface approach	2.71 (0.84) [155]	2.80 (0.70) [164]	0.29	−0.12

Note. Statistical test is independent t-test. Effect size (ES) is Cohen's *d*.

Table 3. Linear regression analysis examining associations between country and ASSIST scores while adjusting for age and gender.

	Deep approach ($n = 314$)	Strategic approach ($n = 321$)	Surface approach ($n = 316$)
Independent variables	β	β	β
Age	0.08	0.06	−0.03
Gender	−0.02	0.12*	0.11
Country	−0.14*	−0.42***	0.07
Explained variance (adj.)	1.8%*	19.8%***	0.7%

Note. Higher values indicate higher age (versus lower age), female gender (versus male gender), and Norway (versus USA). *$p < .05$, ***$p < .001$

was directly associated with higher strategic approach scores. The full model accounted for 19.8% ($p < .001$) of the variance in strategic approach scores. A small, but significant association was also found between being a US American student and having higher scores on the deep approach ($\beta = -0.14$, $p < .05$). The full model accounted for 1.8% ($p < .05$) of the variance in deep approach scores. The between-country difference related to surface approach scores was not statistically significant.

Discussion

This study found that American occupational therapy students had substantially higher strategic approach scores compared to students in Norway. One reason for the higher strategic approach scores among the American students may be that they have had more time refining their time management and organization skills with more years in higher education. They also have several programmatic accreditation standards as well as a

standardized national examination that they must pass before they can practice (AOTA, 2023). This is consistent with a cross-cultural study on occupational therapy students, where higher strategic approach scores were found among the Australian students (among which a large proportion consisted of third- and fourth-year students) compared to students from Norway, Hong Kong, and Singapore, who were more often in the first and second study years (Brown et al., 2017). Likewise, higher levels of deep and strategic approaches were found by Richardson and coworkers (2007) in their study of occupational and physiotherapy masters students, compared to undergraduates. Strategic and deep approaches to learning were also noted to be higher in graduate medical students compared to their undergraduate counterparts (Samarakoon et al., 2013).

While a longitudinal study on Norwegian occupational therapy students found an increase in deep approach scores and a decrease in surface approach scores, the strategic approach remained unchanged over the three years of study (Mørk et al., 2022). It has been argued that the strategic approach is strongly related to individual predisposed factors and, therefore, not so easy to change (Biggs, 2001; Postareff et al., 2014). In a Finnish study across five different courses, the strategic study approach had less within-student variation compared to the deep and surface approaches. The researchers therefore argued that the strategic study approach is less context specific and possibly more strongly related to individual characteristics (Postareff et al., 2018). Thus, a second explanation may concern systematic differences between the samples regarding how individual predispositions, such as personality factors affecting the ability to study effectively, are distributed.

A third explanation combines the previous perspectives and adds an element of cultural context. A selection effect may be that students who use more strategic approaches are more inclined to seek the higher demands embedded in graduate education. An adaptation effect may be that facing the higher demands in graduate education may increase the students' need for effective time management and organized studying (i.e. increase their strategic approach to learning). This concept is endorsed by Entwistle and Peterson (2004) who suggested that learning approaches are context-dependent; thus, students will adjust their efforts based on perceived requirements of the learning environment. In line with this view, study approaches, including the strategic approach, have been found to be related to learning environment factors. For example, students perceiving the goals and standards to be clear more often had higher ratings on the strategic approach, compared to their counterparts (Mørk et al., 2023). Thus, to facilitate productive approaches to learning among students, these researchers suggested that educators should prioritize clarifying the goals and standards of their courses and curricula. In our study, the American students in

particular were exposed to comprehensive goals and standards in their occupational therapy education program. It is conceivable that if these goals and standards were made clear to the students, they enabled the students to direct their efforts onto appropriate tasks and therefore stimulated a strategic approach to learning.

In addition, many American students enrolled at private universities pay substantial amounts of money for their education, which may provide them with strong financial motives to use their time wisely. As higher education programs in Norway are fully or partially publicly funded, students may experience less pressure to study effectively. Interestingly, emerging evidence from the USA suggests that free or subsidized college can increase student success and motivation toward it (Harris & Mills, 2021); however, these data reflect a concept novel to current American societal norms.

The American students also had higher scores on the deep learning approach, compared to the Norwegian students. A longitudinal study on the Norwegian occupational therapy students showed an increase in deep approach scores across the three year course of study (Mørk et al., 2022). This may support an explanation of the differences between the students from the two countries emphasizing an adaptation effect, implying that the higher scores among the American students can be explained by their spending more years adapting to the standards, culture, and requirements of higher education. However, albeit statistically significant, the between-country difference in deep approach scores was small.

American students must complete graduate-level schooling if they desire to practice as an occupational therapist. Comparisons between the countries' respective curricula may provide insight into differences in what is required from students and requirements may in turn have an impact on students' use of different learning approaches. However, this question was beyond the focus of this study. Researchers may wish to explore these differences and the resulting skill sets and skill levels of therapists in the respective countries.

This is one of the first studies on student study approaches to be conducted for occupational therapy programs in the U.S. and may serve to inform faculty on future pedagogy. The added knowledge about occupational therapy students' approaches to learning in different countries may increase the understanding of students' learning processes in different higher education contexts. This can promote an international exchange of ideas to enhance student learning.

Limitations

While all six occupational therapy programs in Norway were represented in the Norwegian sample, only two programs were represented in the

sample from the U.S. This sample of American programs reflects a small number of the current approximately 248 accredited masters and entry level doctoral programs (ACOTE, 2018). The two universities are at opposite geographic sides of the U.S. and, it could be argued, represent very different cultural areas (the Northeast and the West coast). However, they are both private colleges, which may vary significantly from the many public funded universities and colleges in the US.

The cross-sectional study design precludes any causal interpretations to be established. While the instrument used to assess learning approaches has been validated several times in both languages, the study is hampered by the crude age differentiation (i.e. above and below 30 years). While we found no association between age and the learning approach measures, this may be owing to the lack of precision in the measurement of age. Finally, while well reflecting the gender distribution in occupational therapy education programs (Andonian, 2017; Bonsaksen et al., 2016; Yu et al., 2021), very few male students were involved in the study.

Conclusion

This study aimed to examine differences in learning approaches between occupational therapy students in Norway and the USA. The American students had substantially higher scores on the strategic approach and on the deep approach compared to the Norwegian students, while no statistically significant difference was found for the surface approach scores. This study suggests that there are differences in learning approaches between occupational therapy students in Norway and the USA. Differences may be due to the differences in national regulations and educational levels required for entering occupational therapy education programs in the two countries, perceived context demands, or personal factors such as predisposition for learning.

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