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Occupational Therapy Students in Norway: Do Their Approaches to Studying Vary by Year In the Program?

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Occupational Therapy Students in Norway: Do Their Approaches to Studying Vary by Year In the Program?

Abstract

Approaches to studying may be influenced by students' age, maturity, and experience in higher education. Students' approaches to studying may develop toward deep and/or strategic approaches and away from a surface approach as they move through the curriculum, which is generally considered a positive development. This study aimed to identify differences in approaches to studying among first-, second-, and third-year students enrolled in an occupational therapy program. Three cohorts of students ($n = 160$) from one university college completed the Approaches and Study Skills Inventory for Students (ASSIST) along with sociodemographic information. One-way analyses of variance were used to identify differences in approaches to studying among the student cohorts. The scores on the ASSIST were largely similar between the cohorts. However, first-year students had higher scores on the surface approach and on syllabus-boundness, compared to third-year students. There was a linear trend of decreasing scores on these two scales: from highest among first-year students to lowest among third-year students. With few exceptions, students in three cohorts showed similar levels of deep, strategic, and surface approaches to studying. More efforts should be placed on assisting students to adopt a deep and/or strategic approach to studying and to reduce a surface approach.

Keywords

approaches to studying, higher education, occupational therapy, students

Cover Page Footnote

The authors would like to acknowledge the students who volunteered to take part in this study.

Credentials Display

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An approach to studying refers to a student's general orientation toward learning in everyday academic situations (Richardson, 2013). According to Entwistle and Ramsden's (1983) theoretical framework, students may adopt a deep, surface, or strategic approach to studying; or rather, a personalized combination of the three. It is generally agreed, however, that students tend to have a stronger preference for one or two of the study approaches (Entwistle, 2007). The deep approach is studying with the purpose of examining and connecting ideas to construct personal meaning from the study materials. The surface approach is studying with the aim of passing exams while making the least possible effort. The strategic approach to studying may encompass elements of both the deep and the surface approach, but it is organized and achievement-oriented: The strategic student aims at the best possible grade and relates to study materials with that goal in mind.

To some extent, this conceptual framework has been used in research on occupational therapy students' learning and their approaches to studying. One early qualitative study by Svidén (2000) examined students' written reflections on learning: How they made sense of learning tasks; what behaviors were involved; what was important, difficult, and interesting; and how they would like to improve their learning. The responses were classified as relating to two strands: the factual and the connective. According to Entwistle and Ramsden's (1983) terminology, these strands might be viewed as indicators of the surface approach and the deep approach, respectively.

Approaches to studying are important because they have been found to predict academic outcomes among students. Specifically, deep and strategic approaches to studying have in numerous studies been found to be associated with better learning outcomes and exam grades among students, whereas a surface approach has been associated with worse outcomes (Brodersen, 2007; Diseth & Martinsen, 2003; May, Chung, Elliot, & Fisher, 2012; Richardson, Abraham, & Bond, 2012; Salamonson et al., 2013; Subasinghe & Wanniachchi, 2009; Ward, 2011). Approaches to studying have also been found to mediate the effect of students' course experiences on their subsequent academic performance (Diseth, Pallesen, Brunborg, & Larsen, 2010) and to mediate the effect of students' autonomous study motivation on academic performance (Kusurkar, Ten Cate, Vos, Westers, & Croiset, 2013). These findings concur with the view that approaches to studying are insufficiently understood as solely related to individual students; rather, approaches to studying are also closely related to the learning environment in which the learner is situated. Using a recent example, Sun and Richardson (2016) performed a path analysis of the relationships between student background characteristics, study behaviors (approaches to studying), perceptions of the academic environment, and academic outcomes. They found the outcomes to be mainly caused by study behaviors and the students' perceptions of the learning environment, and that the relationship between behaviors and perceptions was bidirectional: Variations in both measures contributed to variations in the other. All subscales of the course experience questionnaire

(i.e., appropriate assessment; appropriate workload; clear goals and standards; and emphasis on independence, generic skills, and good teaching) measuring deep and strategic approaches were significant and positive, and all of the subscales measuring a surface approach were significant and negative (Sun & Richardson, 2016).

There is extensive similar evidence of associations between aspects of the learning environment and students' approaches to studying (Baeten, Kyndt, Struyven, & Dochy, 2010; Kreber, 2003; Lizzio, Wilson, & Simons, 2002; Richardson, 2010; Trigwell, Prosser, & Waterhouse, 1999). In consideration of such findings, educators have been encouraged to develop curricula and teaching styles according to some positive—but also some ambiguous—effects on study approaches found from educational activities and approaches designed to support deep learning among students. These have included group learning (Hall, Ramsay, & Raven, 2004), provision of support for students' writing skills (English, Lockett, & Mladenovic, 2004), problem-based learning (Sadlo & Richardson, 2003), and the implementation of case-study methods (Ballantine, Duff, & McCourt Larres, 2008).

The evidence relating students' approaches to studying to their learning environment does not preclude the possibility that student characteristics may influence the adopted approach to studying. In fact, several studies have provided evidence of older students being associated with a more productive (i.e., higher deep/strategic, lower surface) approach to studying when compared to younger students (Baeten et al., 2010; Beccaria,

Kek, Huijser, Rose, & Kimmins, 2014; Richardson, 2005; Salamonson et al., 2013; Wickramasinghe & Samarasekera, 2011). Productive study approaches among older students may be a result of their having more experience with the expectations, norms, study tasks, and culture constituting higher education. In line with the above, previous studies have found more higher education experience to be associated with better academic performance among occupational therapy students (Bonsaksen, 2016; Shanahan, 2004). Given the preference for challenge and personal growth found in more mature students (Seah, Mackenzie, & Gamble, 2011), it is possible that the association between experience and better academic performance is mediated by more productive study approaches by the more experienced students. Extending the above reasoning, we would cautiously suggest positive associations between higher age, more higher education experience, more productive approaches to studying, and better academic outcomes.

Other researchers, however, have demonstrated more surface approaches in cohorts of third-year medical students compared to cohorts of first- and second-year medical students (Cebeci, Dane, Kaya, & Yigitoglu, 2013), which is in direct contrast to the suggested reasoning. Moreover, Brown and Murdolo's (2016) recent findings of lower levels of a deep study approach among occupational therapy students in the fourth-year cohort compared to students in the first-, second-, and third-year cohorts, indicates that the associations may not be straightforward.

In summary, Entwistle and Ramsden's (1983) theoretical framework encompasses core concepts for understanding how students engage

with studying and learning in higher education. To a degree, the concepts have been used in occupational therapy education research, and there is evidence to suggest that deep and strategic approaches to studying are more useful for students to adopt—across a range of fields and disciplines—than surface approaches. The learning environment plays an important part in determining students' adoption of the various study approaches, but student characteristics are similarly relevant. Research results have suggested that students' approaches to studying are positively influenced by higher age and studying in more advanced study cohorts, but the evidence is mixed. Thus, this study addresses an important but under-researched topic, particularly in relation to students enrolled in occupational therapy education. There is a need to establish more knowledge concerning the relationship between occupational therapy students' study progression and their adoption of different approaches to studying, as this may have implications for curriculum design and teaching strategies.

Study Aim

The aim of the current study was to examine whether approaches to studying differed between occupational therapy students in three cohorts, ranging from the first year to the third year, at one university in Norway. The research question for the study was: Are there systematic differences between first-, second-, and third-year occupational therapy students' approaches to studying? If such systematic differences among cohorts exist, teaching and curricula may need to be shaped differently for different study cohorts,

in accordance with the students' progression through the education program.

Methods

Design and Setting of the Study

To investigate the development of individual students' study approaches across time, a longitudinal design would need to be employed. For this study, however, due to time and resource constraints, a cross-sectional design was used to provide a preliminary picture of the relationship between students' study progression and their adopted study approaches at an aggregated cohort level. The occupational therapy education program in Oslo, where the study was conducted, is an undergraduate, 3-year, full-time program.

Participants and Recruitment

The inclusion criteria for the study were: (a) that the students enrolled in the undergraduate occupational therapy education program in Oslo and (b) that the students provided informed consent to participate in the study. There were no exclusion criteria. A non-teaching member of the staff distributed the questionnaires to students in classrooms during breaks. For the participants in all three cohorts, the data were collected in January, 2015. Thus, at the time of the data collection, the participants had recently started the second, fourth, and sixth semesters for students in the first, second, and third years of study, respectively. The data collection took place during a period of the academic year when all three student cohorts were based at the university (i.e., not in practice fieldwork).

Measurement

Data on the students' approaches to studying was obtained from the self-report questionnaire Approaches and Study Skills

Inventory for Students (ASSIST) (Tait, Entwistle, & McCune, 1998). The ASSIST was developed for use with tertiary-level students and can be used to identify students who are having difficulty with their studies. The ASSIST has three sections, including conceptions of studying (Section A), approaches to studying (Section B), and preferences for teaching (Section C). In this study, we used a previously validated Norwegian version (Diseth, 2001) of the 52-item questionnaire concerning approaches to studying (Section B), as this was the information of relevance for this particular study.

As confirmed by previous factor analyses, the ASSIST Section B items are organized as three main factors: the deep, strategic, and surface approaches (Byrne, Flood, & Willis, 2004; Entwistle, Tait, & McCune, 2000; Reid, Duvall, & Evans, 2005). Each of these approaches consist of several subscales. The deep approach consists of the subscales seeking meaning, relating ideas, use of evidence, and interest in ideas. The strategic approach consists of the subscales organized study, time management, alertness to assessment demands, achieving, and monitoring effectiveness. The surface approach consists of the subscales lack of purpose, unrelated memorizing, syllabus-bound, and fear of failure.

The original English language ASSIST scales have demonstrated good internal consistencies (Cronbach's α ranging 0.61-0.88) when used with students in different academic and professional areas (Ballantine et al., 2008; Brodersen, 2007; Brown, Wakeling, Naiker, & White, 2014; Byrne et al., 2004; Reid et al., 2005). The Norwegian language ASSIST, explored with factor analytic procedures and structural equation

modeling (Diseth, 2001), have yielded the same three latent factors (deep, strategic, and surface approaches), and measures of internal consistency established for each of them have been satisfactory (Cronbach's α ranging 0.70-0.81). The validity of two of its strategic approach subscales (monitoring effectiveness and alertness to assessment demands), however, was questioned. These scales contributed little to the model (communalities: 0.18 for alertness to assessment demands and 0.30 for monitoring effectiveness) and failed to load uniformly on the strategic approach. In addition to the ASSIST, information regarding demographics (age and sex), education (cohort, prior higher education, and time spent on self-studying during a normal week), and work (time spent on paid work during a normal week) were collected using a brief questionnaire.

Data Analysis

All data were entered into the computer program IBM SPSS (IBM Corporation, 2015). Descriptive analyses were performed on all variables using means (M), standard deviations (SD), frequencies, and percentages as appropriate. A one-way analysis of variance (ANOVA) was conducted to examine whether students in the three cohorts differed on the ASSIST scales and subscales. In cases of statistically significant ANOVA results, post-hoc analyses using the Tukey honest significant difference (HSD) were conducted to identify the nature of the differences. In addition, we introduced a linear term to examine whether there were consistent trends in the data across the three year-levels. The level of statistical significance was set at $p < 0.05$.

Ethics

Approval for conducting the study was obtained from the Norwegian Data Protection Official for Research (project number 40314). The students were informed that completion of the questionnaires was voluntary, that their responses would be anonymous, and that there would be no negative consequences for opting not to participate. All of the participants provided written informed consent.

Results

Participants

The participant characteristics are shown in Table 1. One hundred and sixty students (first year $n = 57$, second year $n = 50$, and third year $n = 53$) completed the questionnaire. There was a statistically significant age difference between the cohorts: the mean age of the participants in the first year was 22.8 years ($SD = 4.4$ years), while it was 23.4 years ($SD = 3.4$ years) and 25.6 years ($SD = 5.1$ years) for students in the second and third years, respectively. Female students were the majority in all cohorts, with a female proportion varying between 74.0% and 81.1% (*ns.*). The proportion of students who had higher education experience prior to enrollment in the occupational therapy education program varied between 42.1% and 44.2% (*ns.*). The participants in the second year reported that they spent 6.7 hr ($SD = 3.5$ hr) engaged in relevant self-studying activities during a typical week, while the participants in the first and third years spent an average of 11.4 hr ($SD = 4.7$ hr) and 10.3 hr ($SD = 6.6$ hr), respectively ($p < 0.001$). Time spent in paid work during a normal week varied between 6.9 hr and 8.5 hr (*ns.*).

ASSIST Scores

The mean ASSIST scores for students in the first-, second-, and third-year cohorts are shown in Table 2. Reliability estimates (Cronbach's α) for the study approach scales were 0.81 (deep approach), 0.80 (strategic approach), and 0.77 (surface approach).

In the one-way ANOVA, the only two emerging differences between the student cohorts were on the surface approach to studying ($p < 0.05$) and on the subscale syllabus-bound ($p < 0.01$). When performing the post-hoc multiple comparisons, we found that students in the first and third years had different scores on the surface approach to studying and on the subscale syllabus-bound (both $p < 0.05$), whereas students in the second year were not significantly different from students in either the first year or the third year. There was a statistically significant linear trend of decreasing surface approach to studying ($p < 0.05$) and of decreasing scores on syllabus-bound ($p < 0.01$) across the year cohorts.

Table 1
The Students' Demographic Characteristics ($n = 160$)

Characteristics	Year cohort				<i>p</i>
	First year ($n = 57$)	Second year ($n = 50$)	Third year ($n = 53$)	All ($n = 160$)	
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	
Age ¹	22.8 (4.4)	23.4 (3.4)	25.6 (5.1)	23.9 (4.5)	< 0.01
Sex ²	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	0.61
Male	11 (19.3)	13 (26.0)	10 (18.9)	34 (21.3)	
Female	46 (80.7)	37 (74.0)	43 (81.1)	126 (78.8)	
Prior higher education ²	24 (42.1)	22 (44.0)	23 (44.2)	69 (43.1)	0.97
Time spent on self-study ¹	11.4 (4.7)	6.7 (3.5)	10.3 (6.6)	9.5 (8.2)	< 0.001
Time spent on paid work ¹	6.9 (7.0)	8.5 (7.3)	8.2 (7.3)	7.8 (7.2)	0.50

Note. ¹Statistical test is ANOVA *F*-test. ²Statistical test is χ^2 test. *M* = Mean; *SD* = Standard deviation. P-values indicate the probability of overall differences between the year cohorts. 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/paid work indicate hours spent during a normal week.

Table 2
The Students' Approaches to Studying ($n = 160$)

ASSIST category	ASSIST subscales	Year cohort				<i>F</i> -test <i>p</i>
		First year ($n = 57$)	Second year ($n = 50$)	Third year ($n = 53$)	All ($n = 160$)	
		<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	
Deep approach		57.2 (8.1)	56.2 (8.9)	59.0 (7.5)	57.5 (8.2)	0.22
	Seeking meaning	14.7 (2.4)	14.4 (2.5)	15.0 (2.4)	14.7 (2.4)	0.50
	Relating ideas	13.8 (2.8)	13.7 (2.9)	14.6 (2.6)	14.0 (2.8)	0.16
	Use of evidence	13.8 (2.6)	14.3 (2.5)	14.8 (2.7)	14.3 (2.6)	0.15
	Interest in ideas	14.9 (2.9)	13.9 (3.2)	14.8 (2.6)	14.5 (2.9)	0.21
Strategic approach		72.4 (11.0)	69.6 (9.7)	71.5 (9.1)	71.2 (10.0)	0.36
	Organized study	13.1 (3.2)	12.7 (3.0)	13.2 (2.5)	13.0 (2.9)	0.68
	Time management	13.5 (3.3)	12.1 (2.9)	12.8 (2.7)	12.8 (3.0)	0.06
	Alertness to assessment demands	15.6 (2.7)	15.1 (2.5)	14.4 (2.8)	15.0 (2.7)	0.09
	Achieving	14.2 (3.1)	13.9 (2.5)	14.9 (2.4)	14.3 (2.7)	0.17
	Monitoring	16.0 (2.5)	15.8 (2.3)	16.2 (2.3)	16.0 (2.3)	0.73

effectiveness

Surface approach	50.3 (9.2)	48.6 (7.6)	46.2 (9.1)	48.4 (8.8)	< 0.05
Lack of purpose	9.0 (3.1)	9.1 (3.4)	8.4 (2.7)	8.9 (3.1)	0.50
Unrelated memorizing	12.4 (2.6)	11.1 (2.7)	11.5 (3.2)	11.7 (2.9)	0.08
Syllabus-bound	14.2 (3.4)	13.9 (2.3)	12.5 (2.6)	13.5 (2.9)	< 0.01
Fear of failure	14.7 (3.7)	14.7 (3.2)	13.6 (4.0)	14.3 (3.7)	0.22

Note. ASSIST = Approaches and Study Skills Inventory for Students; *M* = Mean; *SD* = Standard deviation. P-values indicate the probability of overall differences between the year cohorts.

Discussion

Approaches to studying have been found to predict academic outcomes among students. The aim of the present study was to examine the differences among cohorts of occupational therapy students regarding their approaches to studying. The results indicate that students in the cohorts were largely similar in this respect. However, syllabus-boundness and, more generally, a surface approach to studying were more prominent among students in the first-year cohort compared to students in the second- and third-year cohorts. There were linearly decreasing trends of syllabus-boundness and a surface approach to studying across the year cohorts.

Aspects of the learning environment have been proposed as important factors for explaining students' approach to studying (Baeten et al., 2010; Kreber, 2003; Lizzio et al., 2002; Richardson, 2010; Trigwell, Prosser, & Waterhouse, 1999). Overall, the three cohorts were characterized by adopting similar approaches to studying. This finding may be interpreted, partly, as a result of the students having a shared learning environment, as the study sample was recruited from one education program at a single institution. As such, a shared learning environment may have contributed to the students'

adoption of similar approaches to studying. An alternative reason, or in combination with a shared learning environment, may be that the approach to studying is a relatively stable characteristic of individual students, as previously argued (Reid, Evans, & Duvall, 2012). Baeten and colleagues (2010) similarly supported this view. Their review indicated that the stronger the students' initial approach to studying when entering the learning environment—whether it be largely deep or surface—the less likely the students were to change their approach to studying during the course of the curriculum. This persistent view of study approaches is largely consistent with the few differences between study cohorts found in the present study.

Nevertheless, some statistically significant differences among the cohorts were found. Compared to the first-year students, the third-year students expressed less focus on studying with the aim of passing exams while making the least possible effort (surface approach), and they were less oriented toward simply reproducing the learning material (syllabus-boundness). These differences may be a result of both individual differences between members of the three cohorts and more structural aspects of the learning environment.

A key structural aspect of the learning environment concerns the organization of the curriculum. For students enrolled in the occupational therapy education program in Oslo, their first year of study comprises a rather broad range of theoretical subjects with exams following each of them. However, a substantial part of their third year revolves around producing a bachelor's thesis on a specific topic of their choice, which requires a more in-depth orientation toward a topic that is of personal as well as professional interest (Oslo and Akershus University College of Applied Sciences, 2016). A gradual progression from a broad theoretical perspective with several assessments to more specific work in a delimited field of interest may reflect a gradual shift toward higher levels of academic autonomy. In turn, this may help explain why a surface-level and syllabus-bound approach to studying was found to be less prevalent among third-year students compared to first-year students.

The present study found a marginal tendency toward a deep approach to studying among third-year students compared to first- and second-year students. This tendency was, however, not statistically significant. The present study somewhat contradicts Brown and Murdolo (2016), who found that final-year Australian occupational therapy students scored significantly lower on a deep approach to studying compared to first-year students. Moreover, they did not find a decreasing trend of a surface approach among the four year-level cohorts of students. Brown and Murdolo noted, however, that this finding could be a result of the organization of the Australian curriculum. Specifically, they emphasized that the students in their sample had completed clinical

fieldwork during their final year and were not during that year subjected to exams, theoretical assessments, or production of a thesis in a delimited field of interest.

In the occupational therapy education program in Oslo, clinical fieldwork periods of 10 weeks occur in the third, fourth, and sixth semesters. Thus, the time spent in clinical practice situations increases with study progression. At the time of the data collection, the first-year students had gained experience from no such placement periods, whereas the second- and third-year students had completed one and two periods, respectively. In contrast to Brown and Murdolo's (2016) reasoning, studies have demonstrated that fieldwork placements help students achieve a deeper understanding and clarification of the occupational therapists' role (Mulholland & Derald, 2007). Therefore, clarification and a deeper understanding of the occupational therapists' role may be related to and help to explain why the present study found less surface-oriented approaches to studying among the third-year students compared to the students in the other two cohorts.

Individual aspects may also be of importance. Several studies have proposed that higher student age is associated with a more productive (e.g., less surface and syllabus-bound) approach to studying (Baeten et al., 2010; Beccaria et al., 2014; Richardson, 2005; Salamonson et al., 2013; Wickramasinghe & Samarasekera, 2011). In the present study, a statistically significant age difference between the cohorts was found, with the third-year students having a higher mean age than the first-year students. Hence, age differences may play a role

in understanding different levels of a surface approach to studying between beginning students and more advanced students.

In a similar vein, the students' degree of academic experience and maturity may have contributed to differences among the cohorts. Having more study experience has been found to be associated with better academic performance among occupational therapy students (Bonsaksen, 2016; Shanahan, 2004), possibly mediated by more productive study approaches being applied by the more experienced students. Third-year students, having already completed two-thirds of their occupational therapy education, including the larger part of their clinical practice training, have presumably acquired more serviceable study skills and a better understanding of their discipline. This may also explain the lower levels of a surface and syllabus-bound approach to studying, compared to the first-year and second-year students. In line with the five-stage model of the mental activities involved in directed skill acquisition (Dreyfus & Dreyfus, 1980), one may assume that third-year students, compared to the other students, had progressed from a quite rigid adherence to taught rules toward a more analytical approach by which they were more capable of transcending reliance on rules and maxims.

High rates of student dropout between the first and second years of college and university are a major concern in Norway. Studies have demonstrated that student traits, such as low motivation, which can be seen as related to a surface-oriented approach to studying, is an important factor for explaining students' dropout rates (Mastekaasa & Hansen, 2005). Given that the third-year cohort already had completed most

of the occupational therapy education program, it seems plausible that this cohort, to a lesser degree than the other two cohorts, consisted of unmotivated students. The same point has similarly been argued in previous research of medical students (Mattick, Dennis, & Bligh, 2004). In turn, the link between motivation and study progression may contribute to explain the less prevalent surface orientation among the third-year students.

For the students, their final year of education may be somewhat characterized by a shift in psychological focus and orientation. Orientation toward work life may also contribute to explain the differences between the cohorts, as found in the present study. Third-year students may, compared to other students, have different prospects regarding their completion of life as a student and their transition to work. This may foster less surface-oriented study approaches as the transitioning students face an expectation of real-life problem solving in a work setting in the future.

Implications

The present study is the first to compare approaches to studying between first-, second-, and third-year occupational therapy students in Norway. Productive approaches to studying (i.e., deep and strategic approaches) have in several studies been found to predict improved academic outcomes (Brodersen, 2007; Diseth & Martinsen, 2003; May et al., 2012; Richardson et al., 2012; Salamonson et al., 2013; Subasinghe & Wanniachchi, 2009; Ward, 2011). Hence, emphasis should be placed on organizing study programs in a manner that assists students to adopt deep and strategic approaches to studying.

This seems to be of importance when learning institutions are faced with “Generation Y” students (i.e., a student generation characterized by an increased tendency to reach goals by means of the least possible effort) (Brown & Murdolo, 2016; Hills, Ryan, Smith, & Warren-Forward, 2012). Reduced prevalence of a surface approach to studying among beginning occupational therapy students may improve their academic outcomes, increase their study motivation, and consequently reduce their dropout rates. Further research is needed on how one might organize the learning environment to maximize a deep approach to studying and minimize a surface approach in the occupational therapy curricula. In view of the types of reasoning related to clinical fieldwork and its role in shaping students’ study approaches, further exploration of the possible effects of different fieldwork placement models seems imperative.

Methodological Issues

The present study has certain methodological limitations. The sampling was based on volunteers as participants, which may cause a selection bias. Self-reported data may be subject to social desirability (i.e., the respondents’ tendency to provide answers they believe will be viewed in a positive or favorable way). The ASSIST has been used in a wide range of studies and with a variety of samples, thus minimizing the issue of social desirability bias. The study is also limited by the rather small sample, resulting in relatively low statistical power. Thus, if we were to apply a conservative level of statistical significance ($p < 0.01$), then the finding that students in the first-year cohort scored higher on a surface approach to studying compared to the

other two cohorts would no longer reach significance. It would be useful to replicate the study with a larger sample. Having a student sample recruited from one occupational therapy education program at one specific institution may limit the representativeness of the findings. Because of the study’s cross-sectional design, the results concern aggregated differences between students enrolled in different study cohorts but do not speak about individual changes over the course of the curriculum. Longitudinal studies with multiple measurements, using individual students as the study unit, would be a way forward for such investigations.

Conclusion

With few exceptions, students in the first-, second-, and third-year cohorts of the occupational therapy education program showed similar levels of deep, strategic, and surface approaches to studying. More efforts should be placed on assisting students to adopt a deep approach to studying and to reduce a surface approach to studying.

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