The relationship between international higher education
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Yin, Yufan

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The relationship between international higher education students' writing conceptions and approaches to learning

Yufan Yin, Anna Parpala & Auli Toom

University of Helsinki | Finland

Abstract: Writing is challenging for international students, who often possess inadequate writing skills and are required to adapt to the new learning environment. Students' approaches to learning have been shown to relate to some constructs of writing conceptions. Nevertheless, little research exists on the relationship between such conceptions and approaches to learning. This study explores writing conceptions, approaches to learning, and their interrelationship among international students. The data were collected from 162 international students at a research-intensive Finnish university using the *HowULearn Questionnaire* and the *Writing Process Questionnaire*. Data analysis included bivariate correlations, confirmatory factor analysis, t-test, latent profile analysis, and ANOVA tests. The results demonstrated how approaches to learning correlated with the writing conceptions of the participants. Three profiles were identified: *deep and organised students* (72.8%), *deep and unorganised students* (14.2%), and *unreflective and unorganised students* (13.0%). These profiles were statistically different in all writing conceptions, including blocks, procrastination, perfectionism, innate ability, knowledge transforming and productivity. Overall, students' ability to reflect on their learning and organise their studying played an important role in their writing conceptions. Based on the findings, the study provides strategies for developing writing for international students and suggestions for enhancing teaching in host universities.

Keywords: writing conceptions, approaches to learning, student learning, international students, higher education

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Contact: Yufan Yin, University of Helsinki, P.O.Box 9, FIN-00014 | Finland - yufan.yin@helsinki.fi | Orcid: https://orcid.org/0000-0002-2172-4361

1. Introduction

The past twenty years have witnessed a constant increase in international student mobility. According to figures from the Organization for Economic Co-Operation and Development (OECD; 2020a), 3.9 million international students enrolled in higher education in OECD countries and 1.7 million in non-OECD countries in 2018. Moreover, 9.2% of tertiary students in OECD countries are international students (8.1% in Finland; OECD, 2020b). The fast-growing number of international students and structural changes in both origin and host countries have intensified the competition in higher education (Choudaha, 2017; de Wit, Ferencz, & Rumbley, 2012) and also set requirements for the development of teaching and pedagogical practices. To attract and retain international students, universities must respond to their learning needs and facilitate their adaptation to university studies (Choudaha, 2017).

Writing abilities have been shown to correlate with academic achievement among international students (Andrade, 2006). Nevertheless, one of the commonly reported challenges among international students is inadequate writing practices, especially in non-native languages (Hyland, 2013; Phakiti & Li, 2011; Singh, 2015). International students' writing challenges have also been acknowledged by the teachers assessing their written work; moreover, teachers consider that insufficient writing skills contribute to such students' overall difficulties in studying in an academic context (Kettle, 2011).

Academic writing involves cognitive and epistemic processes and is affected by motivation and emotions (Lonka, Chow, Keskinen, Hakkarainen, Sandström, & Pyhältö, 2014; Martínez-Fernández, Corcelles, Bañales, Castelló, & Gutiérrez-Braojos, 2017). Therefore, academic writing should be examined through students' writing conceptions that emphasise the whole process of writing instead of merely its outcome (Castelló, McAlpine, & Pyhältö, 2017; Lonka, 2003). More specifically, writing conceptions refer to the practices students develop during writing and the way they characterise their writing (Castelló et al., 2017; Lonka et al. 2014). Previous studies among international students suggest that differences in writing conceptions are unrelated to other student characteristics, such as gender or length of time at the host university (Alshehri, 2020; Kim, Alhaddab, Aquino, & Negi, 2016; Lowinger et al., 2016). Instead, such differences are considered to result from the characteristics of the teaching-learning environment at the host universities, such as variations in university requirements and interaction between students and teachers (Lonka, Ketonen, Vekkaila, Cerrato Lara, & Pyhältö, 2019). Therefore, we assume that writing conceptions are partly related to how students adapt to the new learning environment (Lonka et al., 2019; Singh, 2015).

International students have previous study experiences from their home countries, and they have developed learning strategies that may be suitable to that

particular context (Lin & Scherz, 2014; Singh, 2015). However, at the host university, they are required to adapt to a new learning environment (Lin & Scherz, 2014). Recent research on international students' adaptation to new learning environments emphasises the importance of self-regulated learning strategies (Cho, Levesque-Bristol, & Yough, 2021). Self-regulated learning strategies are closely related to students' approaches to learning (Cook, Kennedy, & McGuire, 2013), which refer to students' intentions and processes when studying (Entwistle, 1988; Entwistle & Ramsden, 1983; Entwistle, McCune, & Sheja, 2006; Gijbels, Van der Watering, Dochy, & Van den Bossche, 2005). Students' approaches to learning have shown to be related, for example, to procrastination (Hailikari, Katajavuori, & Asikainen, 2021; Sæle, Dahl, Sørlie, & Friborg, 2017; Wolters, Won, & Hussain, 2017), which is also one construct of writing conceptions (Lonka et al., 2014). Nonetheless, little research exists on the relationship between writing conceptions and approaches to learning, among either international students or non-international students. Thus, the present study focuses on both writing conceptions and approaches to learning among international university students, as they have proven to be particularly important factors in international students' adaptation to the new learning environment.

1.1   University students' writing conceptions

Writing conceptions, also called writing perceptions or conceptions of academic writing, include six constructs: blocks, procrastination, perfectionism, innate ability, knowledge transforming, and productivity (Lonka et al., 2014). Previous studies have demonstrated that these constructs correlate with each other and act as a whole (Cerrato Lara, 2014). Moreover, such constructs have been found among PhD students in international contexts (Cerrato Lara, Castelló, Garcia Velazquez, & Lonka, 2017; Lonka et al., 2019; Sala-Bubaré, Peltonen, Pyhältö, & Castelló, 2018) as well as among undergraduate students (Martínez-Fernández et al., 2017).

The six constructs have been classified as either maladaptive or adaptive (Boice, 1993). Blocks (Boice, 1993), procrastination (Lonka et al., 2014), perfectionism (Boice, 1993) and the belief in innate ability (Sawyer, 2009) represent maladaptive constructs of writing conceptions. Writing blocks refer to the inability, for reasons unrelated to intellectual capacity or literary skills, to write productively (Boice, 1993). Students facing writing blocks lose their fluency; they wish to write but are unable to write (Zorbaz, 2015). Therefore, writing blocks can be reduced by intervention, e.g., real-time fluency-focused feedback (Dux Speltz & Chukharev-Hudilainen, 2021). Procrastination is defined as the postponing of or failure to begin tasks such as preparing for exams and completing assignments (Milgram, Mey-Tal & Levinson, 1998; Solomon & Rothblum, 1984). In particular, producing texts for assessment causes student blocks, procrastination, and perfectionism (Bastug, Ertem, & Keskin, 2017; Flett, Stainton, Hewitt, Sherry, & Lay, 2012; Grunschel, Patrzek, & Fries, 2013;

Lonka et al., 2014). Research shows that students whose language of instruction is their second language experience a higher level of procrastination in their first year of study than do native speakers (Sarid, Peled, & Vaknin-Nusbaum, 2021). In turn, perfectionism has proven to be both maladaptive and adaptive among both international students (Alshehri, 2020; Lee, Park, & Cho, 2020) and non-international students (Ashby & Gnilka, 2017). Adaptive perfectionism causes students to take their weaknesses and abilities into account when setting goals (Lee et al., 2020). By contrast, students displaying maladaptive perfectionism set overly high standards, pursue flawlessness and fear failure (Hewitt & Flett, 1991; Stoeber & Otto, 2006). However, adaptive perfectionism too has proven to be maladaptive during periods of stress for both international students (Suh, Hong, Rice, & Kelly, 2020) and non-international students (Flett & Hewitt, 2002). For example, at the end of the semester, college students setting overly high standards may face difficulties passing exams and completing assignments (Flett & Hewitt, 2002). The last maladaptive construct of writing conception, the belief in innate ability, is the notion that writing skills are determined at birth and cannot be taught or developed (Palmquist & Young, 1992; Lonka et al., 2014). Students holding such a belief tend to be apprehensive about writing and underestimate their writing skills and abilities (Palmquist & Young, 1992; Sanders-Reio, Alexander, Reio, & Newman, 2014). The belief in innate ability is associated with weak writing performance (Palmquist & Young, 1992), for it undermines efforts to develop writing capabilities and prevents students from revising their texts (Lonka et al., 2008; Sawyer, 2009).

Adaptive constructs of writing conceptions, by contrast, include knowledge transforming (Pyhältö, Nummenmaa, Soini, Stubb, & Lonka, 2012) and productivity (Boice, 1993; Castelló et al., 2017). Knowledge transforming refers to using writing for developing knowledge and generating new ideas in reflective and dialectic processes (Bereiter & Scardamalia, 1987; Paavola, Lipponen, & Hakkarainen, 2004; Tynjälä, Mason, & Lonka, 2001). Students who engage in knowledge transforming experience little difficulty in integrating material into their own arguments and use resources adequately (Lee, Hitchcock, & Elliott Casal, 2018). A sense of productivity is part of self-efficacy in writing (Cerrato Lara, 2014; Lonka et al., 2014). Problems in writing sometimes stem from self-reflection and self-affirmation, and thus it is necessary for students to maintain their self-image as active and productive authors (Lonka et al., 2014).

1.2   University students' approaches to learning

Three different approaches to learning and studying have been identified among international students in the university context (Sakurai, Parpala, Pyhältö, & Lindblom-Ylänne, 2016; Sakurai, Pyhältö, & Lindblom-Ylänne, 2014; Yin, Toom, & Parpala, 2022). Two concern the different ways students process information: the surface approach to learning and the deep approach to learning (Entwistle &

Ramsden, 1983; Marton, Hounsell, & Entwistle, 1984). The third, organised studying (previously the strategic approach), describes how students manage time and effort (Entwistle, 2009) and has therefore been described more as an approach to studying than an approach to learning. Previously, the surface approach to learning referred specifically to relying on memorisation in the learning process, but more recent research suggests that it is related more to a lack of reflection, resulting in a fragmented knowledge base, and therefore it should be described as an *unreflective approach* (Lindblom-Ylänne, Parpala, & Postareff, 2018). By contrast, the deep approach to learning refers to comprehending the intentional content, using evidence, and integrating the information with previous knowledge (Entwistle, 2009).

Research has shown that among international students the surface approach and the deep approach to learning are generally mutually exclusive orientations (Sakurai et al., 2014; Sakurai et al., 2016). However, evidence also exists that international students can score highly on both approaches (Parpala, Mattsson, Herrmann, Bager-Elsborg, & Hailikari, 2021). Such students tend to be unable to form a holistic picture of the topic in question although they search for evidence and attempt to relate and integrate ideas. Similarly, Fryer and Vermunt (2018) found a non-international student group which scored low on both surface and deep approaches to learning. Another example are so-called *organised students*, who score highest on organised studying but whose learning orientation is not characteristic of either the unreflective approach or the deep approach (Asikainen, Salmela-Aro, Parpala, & Katajavuori, 2019; Haarala-Muhonen, Ruohoniemi, Parpala, Komulainen, & Lindblom-Ylänne, 2017; Parpala, Lindblom-Ylänne, Komulainen, Litmanen, & Hirsto, 2010).

Approaches to learning have proven to be partly related to the learning environment, but they can also be stable across different contexts (Postareff, Mattsson, & Parpala, 2018; Ramburuth & McCormick, 2001; Sun & Richardson, 2012; Yin et al., 2022; Zhu, Valcke, & Schellens, 2008). In other words, when university students begin studying in a new learning environment, they may maintain their previous approaches to learning (Postareff et al., 2018; Zhu et al., 2008), and this concerns international students as well (Sakurai et al., 2014).

1.3 Writing conceptions in relation to approaches to learning

Previous research on writing conceptions has suggested a possible relationship between knowledge transforming and approaches to learning (Lonka, 2003). Proficient writers are at the stage of knowledge transforming rather than knowledge telling, and they purposefully aim at audience, investigate a problem or question, integrate various sources and their own ideas, and propose novel perspectives (Björk, Bräuer, Rienecker, & Jörgensen, 2003; Lee et al., 2018). This highly resembles the deep approach to learning (Entwistle, 2009; Mendoza, Lindblom-Ylanne,

Lehtonen, & Hyytinen, 2022), which has not been previously examined in relation to writing conceptions. Meanwhile, Lonka (2003) suggests that maladaptive writing conceptions are possibly related to a failure to integrate knowledge, which can be regarded as the insufficient use of the deep approach. Therefore, one of the hypotheses in the present study is that knowledge transforming is related to the deep approach to learning among international students.

Organised studying has proven to be one of the factors explaining procrastination among non-international students in the Finnish context (Hailikari et al., 2021). Procrastination can be partially predicted by time management (Košíková, Loumová, Kovaľová, Vašaničová, & Bondarenko, 2019) and effort organisation (Rabin, Fogel, & Nutter-Upham, 2011), which resembles students' approaches to learning, especially organised studying (Entwistle, 2009). Based on these studies, we assume that procrastination is related to lower scores on organised studying among international students.

1.4 Aim and research questions

The aim of this study is to investigate the interrelationship between writing conceptions and approaches to learning among international university students. The research questions are as follows:
1. What kinds of writing conceptions (blocks, procrastination, perfectionism, innate ability, knowledge transforming and productivity) do international students have?
2. What kinds of approaches to learning (unreflective approach to learning, deep approach to learning, and organised studying) do international students apply in their studies?
3. What is the relationship between writing conceptions and approaches to learning?
4. What learning profiles can be identified based on approaches to learning, and what are the differences in writing conceptions between the learning profiles?

2. Methodology

2.1 Research context

The study was conducted at a research-intensive Finnish university. At the time of data collection, this university offered 37 bachelor's and 65 master's programmes. In line with common Finnish university practice, students were entitled to continue to the relevant master's programme (120 ECTS, 2 years) after completion of their bachelor's programme (180 ECTS, 3 years). Previously, all bachelor's programmes had been taught in Finnish or Swedish, but in autumn 2019 the Faculty of Science opened the first bachelor's programme taught fully in English. By contrast, English was the language of instruction in most master's programmes. In terms of the

number of degree programmes offered at the bachelor's and master's level, the largest number of programmes were provided by the Faculties of Agriculture and Forestry, Arts, Educational Sciences, Biosciences, Science, and Social Sciences, whereas the Faculties of Law, Pharmacy, Theology, and Veterinary Medicine offered fewer programmes at this level. In the present study, 30 percent of participants were from the following programmes: Global Politics and Communication, Computer Science, Translational Medicine, Food Sciences, European and Nordic Studies, Agricultural Sciences, Microbiology and Microbial Biotechnology, Intercultural Encounters, Russian Studies, and Chemistry and Molecular Sciences.

2.2   Participants

The operational definition of international students in Finnish context and this university was non-Finnish citizens. Therefore, in this study, students holding Finnish nationality and dual-nationality students including Finnish were excluded. Of a total of 1150 non-Finnish bachelor's and master's students listed on the Student Register database in 2018 (the figure differed slightly in spring 2019), 162 international students participated voluntarily in the study (response rate = 14.1%). The first mean of recruitment was electronic questionnaire sent via email to all registered non-Finnish students twice in every term from Spring 2018 to Spring 2019. The e-mail explained the aims of the study and emphasised that participation could promote the enhancement of teaching quality. The second approach to recruiting participants involved contacting students who took Finnish language courses as elective or compulsory components of their international programmes. The distribution of participating international students was in line with that of registered international students; more information about student status, gender, age and faculties is displayed in Table 1, below. The mean age of the participants was 26 years (SD = 5.2; Min-Max: 19-47). Moreover, almost half of them (51.9%) had studied at this university for less than one year.

These international students belonged to 45 programmes and came from 46 countries, representing diverse cultural and linguistic backgrounds. Students from European countries accounted for the largest group (54.9%), followed by students from Asia (19.1%), North America (10.5%), Africa (3.1%), South America (2.5%), and Oceania (1.9%). In addition, 3.1% of the participants were of dual nationality, while the nationality of 4.9% remained unknown. As for students' first languages, 49 languages were reported, including English (14.8%), Chinese (12.1%), German (11.4%), Spanish (10.8%), French (7.4%) and Russian (6.0%). For 90.1% of the participants, the language of instruction was English. Before enrolment at this university, 19.1% of students had never studied at an institution with the same primary language of instruction as that of their current study programme in Finland, 32.1% had had such experience for less than one year, 25.3% for 1-4 years and 16.0% for more than 4 years.

Table 1. Participant demographics

		Participants (n=162)		Distribution (N=1150)	
		Frequency	%	Frequency	%
Student status	Degree-seeking Bachelor	8	4.9	234	20.3
	Degree-seeking Master	78	48.1	662	57.6
	Visiting Bachelor	36	22.2	254*	22.1
	Visiting Master	40	24.7		
Gender	Female	113	69.8	683	59.4
	Male	48	29.6	467	40.6
Year of birth	1938-1980	6	3.7	148	12.9
	1981-1985	7	4.3	117	10.2
	1986-1990	17	10.5	270	23.5
	1991-1995	78	48.1	433	37.7
	1996-2000	47	29.0	182	15.8
Faculty	Agriculture and Forestry	19	11.7	119	10.3
	Arts	30	18.5	293	25.5
	Biological and Environmental Sciences	13	8.0	113	9.8
	Educational Sciences	12	7.4	27	2.3
	Law	9	5.6	94	8.2
	Medicine	12	7.4	28	2.4
	Pharmacy	2	1.2	29	2.5
	Science	26	16.0	236	20.5
	Social Sciences	36	22.2	167	14.5
	Swedish School of Social Science	2	1.2	7	.6
	Theology	0	0	32	2.8
	Veterinary Medicine	1	.6	3	.3
	Viikki's extensive training	0	0	2	.2

* Visiting students refers to students registering for 'a fixed period without [the] right to take a degree' (Student Register Office). Visiting bachelor's students were not distinguished from visiting master's students.

The most frequently used assessment methods on these programmes were essays or written assignments (67.3%), a written examination at the end of a lecture course (52.5%), a learning diary or a portfolio (i.e., representative work) (40.7%), group assignments (34.6%), oral presentations (26.5%), written exercises (22.2%), a written examination on set books (15.4%), and continuous activities during the course (13.6%). At the time of their participation in the survey, 30.2% of the international students had never taken writing courses where academic writing was taught or at least regarded as one of the study aims.

2.3   Measures

The data were collected through a survey comprising two questionnaires (in English) – *the Writing Process Questionnaire* and the *HowULearn Questionnaire* – and background information. The *Writing Process Questionnaire* measured students' writing conceptions (Lonka, 2003; Lonka et al., 2014). It has been validated in Finnish and other contexts (Cerrato Lara et al., 2017; Martínez-Fernández et al., 2017; Sala-Bubaré et al., 2018). The original questionnaire was a 25-item scale designed for assessing academic writing in higher education (Lonka, 1996; 2003). A 5-point Likert scale (1= totally disagree, 5 = fully agree) measured blocks (5 items; e.g., I sometimes get completely stuck if I have to produce texts), procrastination (4 items; e.g., without deadlines I would not produce anything), perfectionism (4 items; e.g., writing is difficult because the ideas I produce seem stupid), innate ability (2 items; e.g., writing is a skill, which cannot be taught), knowledge transforming (6 items; e.g., writing often means creating new ideas and ways of expressing oneself), and productivity (4 items; e.g., I produce a large number of finished texts).

Students' approaches to learning were measured by the *HowULearn Questionnaire* (Parpala & Lindblom-Ylänne, 2012; Hailikari & Parpala, 2014). It has also been validated in Finnish and other contexts (Cheung et al., 2020; Herrmann, Bager-Elsborg & Parpala, 2017; Postareff et al., 2018; Ruohoniemi, Forni, Mikkonen, & Parpala, 2017; Rytkönen, Parpala, Lindblom-Ylänne, Virtanen, & Postareff, 2012). The 12 items measuring approaches to learning in *HowULearn* were developed from the *Approaches to Learning and Studying Inventory* (ALSI, Entwistle & McCune, 2004; Entwistle, McCune, & Hounsell, 2003) and the revised two-factor version of the *Learning Process Questionnaire* (R-LPQ-2F, Biggs, Kember, & Leung, 2001; Kember, Biggs, & Leung, 2004). Students rated statements on a scale of 1 (totally disagree) to 5 (fully agree). These statements concerned the unreflective approach (prev. surface approach to learning) (4 items; e.g., much of what I've learned seems unrelated bits and pieces in my mind), the deep approach to learning (4 items; e.g., I try to relate what I have learned in one course to what I learn in other courses) and organised studying (4 items; e.g., I carefully prioritise my time to make sure I can fit everything in).

The survey concluded with a section eliciting background information, including gender, age, language, length of study in this university, length of study which the major language was the same as their current study programme, and the number of writing courses that the student had taken.

2.4   Data analyses

Because the scales of students' writing conceptions and approaches to learning have been used and validated in different contexts (Sala-Bubaré et al., 2018; Postareff et al., 2018), in the present study confirmatory factor analysis (CFA) was

performed to test their factorial structure using SPSS AMOS 27. Two items on perfectionism ('I could revise my texts endlessly') and knowledge transforming ('When I write I am concerned about whether the reader understands my text') were deleted because of low estimates of standardized regression weights (.16 and .22 respectively). Moreover, removing these two items contributed to an improvement of .10 in Cronbach's alpha. For the same reason, one item on the unreflective approach to learning ('Often I have to repeat things in order to learn them') was deleted. The model of approaches to learning achieved a reasonable model fit as defined by Hu and Bentler (1999): $\chi^2/df = 1.506$, $p < .020$, CFI = .962, TLI = .949, RMSEA = .056, SRMR = .058. Nevertheless, the results for writing conceptions exhibited a poor model fit: $\chi^2/df = 1.884$, $p < .001$, CFI = .841, TLI = .813, RMSEA = .074, SRMR = .077.

Descriptive statistics and bivariate correlation analysis were performed using SPSS 27. Then, t-test was used to explore whether demographic variables had significant impact on writing conceptions and approaches to learning.

Students were divided into homogeneous groups based on their Z scores on approaches to learning using latent profile analysis (LPA). LPA identifies discrete classes of cases which share similar patterns to a set of continuous variables (Collins & Lanza, 2010). Profiles were created using Model 1 (variances: equal, covariances: zero) via tidyLPA package in R (Rosenberg, Beymer, Anderson, Van Lissa, & Schmidt, 2018). Both a two-cluster solution (BIC = 1345.02, entropy = .88, BLRT p-values = .01) and a three-cluster solution (BIC = 1353.82, entropy = .77, BLRT p-values = .03) were acceptable. Nevertheless, to reveal more details about the differences in writing conceptions among students applying different combinations of approaches to learning, the three-cluster solution was chosen.

A one-way ANOVA test with the Bonferroni post hoc-test was performed to determine whether the between-group differences in writing conceptions were statistically significant. The effect size measured by Cohen's f was calculated using the partial Eta squared (small: > .1, medium: > .25, large: > .4; see Cohen, 1988) and showed the extent to which the variables were differentiated.

3. Results

3.1 International students' writing conceptions

Concerning the four maladaptive constructs of writing conceptions, international students scored moderately on procrastination and low on perfectionism and blocks. The mean score for belief in innate ability was the lowest. As for the adaptive writing conceptions, students scored highest on knowledge transforming and lowest on productivity (see Table 2).

Table 2. Mean and standard deviation of writing conceptions

	M	SD	Skewness	Kurtosis	Cronbach's α
Blocks	2.61	.80	.37	-.03	.74
Procrastination	3.23	.94	-.19	-.56	.76
Perfectionism	2.62	.92	.21	-.66	.67
Innate ability	1.84	.86	.94	.62	.75
Knowledge transforming	3.91	.60	-1.05	3.34	.64
Productivity	2.48	.87	.34	-.57	.80

The results of a t-test showed that knowledge transforming among international students who had studied at this university for less than one year ($M = 3.76$, $SD = .64$, $N = 85$) was significantly lower than that among international students with a longer length of study ($M = 4.10$, $SD = .50$, $N = 73$), $t(156) = -3.69$, $p < .001$, 95% CI [-.52, -.16], $d = .59$, $\eta^2 = .08$. Moreover, knowledge transforming among international students from the Faculties of Arts, Educational Sciences, Law, Social Sciences, and the Swedish School of Social Science ($M = 3.80$, $SD = .59$, $N = 89$) was significantly higher than that among students from the Faculties of Agriculture and Forestry, Biological and Environmental Sciences, Medicine, Pharmacy, Science, and Veterinary Medicine ($M = 4.05$, $SD = .59$, N = 73), $t(160) = -2.66$, $p < .01$, 95% CI [-.43, -.06], $d = .42$, $\eta^2 = .04$. With the exception of knowledge transforming, no significant difference in writing conceptions was found between student groups in terms of gender, status (bachelor's or master's students), previous experience of academic writing courses (measured by the total number of academic writing courses they had taken at this university or before the enrolment) or length of study which the major language was the same as their current study programme.

3.2   International students' approaches to learning

As Table 3 shows, in this sample, international students scored highest on the deep approach to learning and lowest on the unreflective approach to learning. The results of a t-test showed that organised studying among international students who had studied in the context which the major language was the same as their current study programme for less than one year ($M = 3.66$, $SD = .75$, $N = 83$) was significantly higher than that among international students with a longer experience (M = 3.45, $SD = .97$, $N = 67$), $t(148) = 1.46$, $p < .01$, 95% CI [-.07, .48], $d = .23$, $\eta^2 = .01$. Except for that, there was no significant difference in approaches to learning between student groups in terms of gender, status, previous experience of academic writing courses, length of study at this university, or faculties (humanities and social sciences or sciences).

Table 3. Mean and standard deviation of conceptions of approaches to learning

	M	*SD*	Skewness	Kurtosis	Cronbach's α
Unreflective approach to learning	2.14	.79	.65	.02	.74
Deep approach to learning	4.07	.59	-.86	1.11	.74
Organised studying	3.56	.85	-.48	-.17	.80

3.3 Relationship between writing conceptions and approaches to learning among international students

Blocks were found to have a significant positive correlation with the unreflective approach to learning and a negative correlation with the deep approach to learning and organised studying (see Table 4). In turn, procrastination correlated positively with the unreflective approach to learning and negatively with organised studying. Perfectionism displayed a significant positive correlation with the unreflective approach to learning and a negative correlation with the deep approach to learning and organised studying. The belief in innate ability correlated positively with the unreflective and deep approaches to learning. In addition, the unreflective approach to learning correlated positively with all four maladaptive writing conceptions (blocks, procrastination, perfectionism and innate ability).

Table 4. Correlations between approaches to learning and writing conceptions

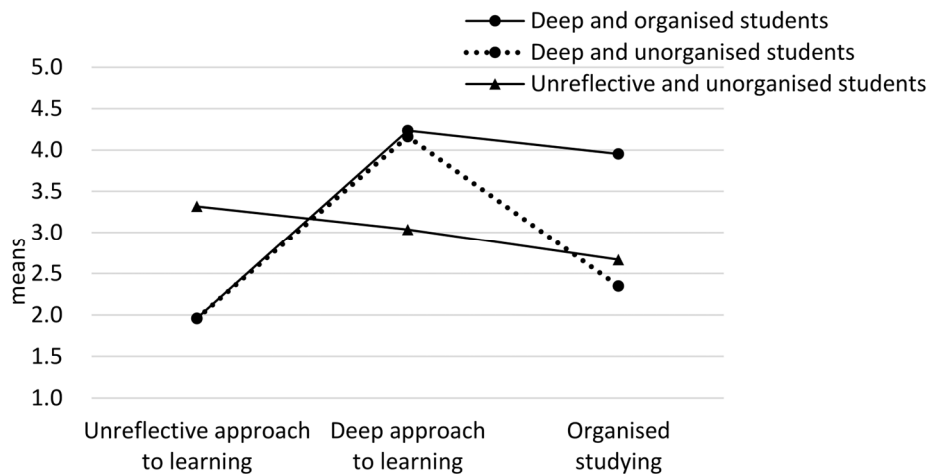|	Unreflective approach to learning	Deep approach to learning	Organised studying
Maladaptive writing conceptions			
1) Blocks	.357**	-.326**	-.241**
2) Procrastination	.246**	-.146	-.378**
3) Perfectionism	.336**	-.254**	-.168*
4) Innate ability	.288**	-.199*	-.055
Adaptive writing conceptions			
1) Knowledge transforming	-.185*	.312**	.175*
2) Productivity	-.151	.176*	.238**

*p < .05; **: p < .01 (two-tailed)

By contrast, knowledge transforming correlated positively with the unreflective approach to learning. Meanwhile, it correlated positively with the deep approach to learning and organised studying. Similarly, a sense of productivity displayed a significant positive correlation with the deep approach to learning and organised studying.

3.4 International students' learning profiles

From the results, three profiles emerged, which we labelled 1) *deep and organised students* (*n* = 118, 72.8%), 2) *deep and unorganised students* (*n* = 23, 14.2%), and 3) *unreflective and unorganised students* (*n* = 21, 13.0%) (see Figure 1). *Deep and organised students* represented a typical student group with the lowest score on the unreflective approach to learning and the highest score on the deep approach to learning and organised studying. In turn, *deep and unorganised students* scored lowest on organised studying and displayed almost the same performance as the first group on the unreflective approach and deep approach to learning. Finally, *unreflective and unorganised students* scored highest on the unreflective approach and lowest on the deep approach and lower on organised studying. However, the difference in organised studying between the last two groups was not statistically significant.
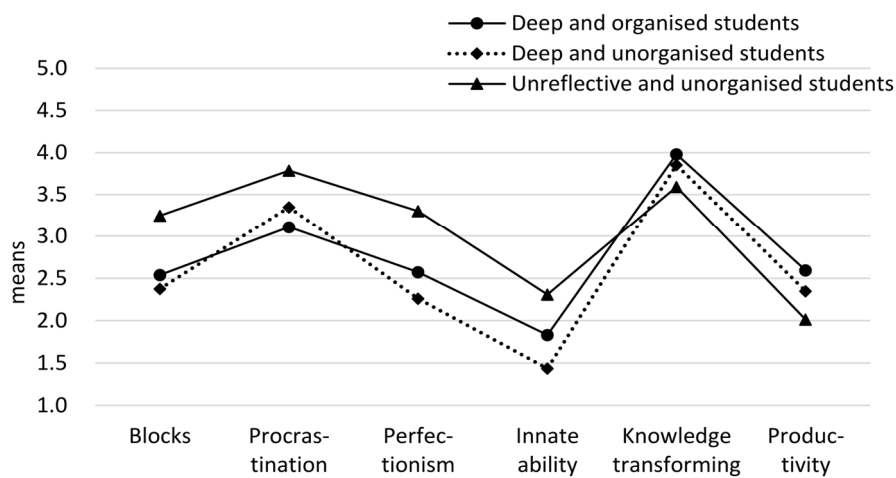
Figure 1. Learning profiles.

Organised studying was the variable that differentiated the learning profiles the most ($F_{(2, 159)}$ = 40.18, p <.001). Its effect size on the cluster solution was the strongest (partial η^2 = .60), followed by the deep approach ($F_{(2, 159)}$ = 69.11, p <.001, partial η^2 = .47) and unreflective approach ($F_{(2, 159)}$ = 117.33, p <.001, partial η^2 = .34).

As Figure 2 demonstrates, *unreflective and unorganised students* scored highest on blocks, procrastination, and perfectionism and innate ability. Meanwhile, they scored lowest on knowledge transforming and productivity. By contrast, *deep and organised students* scored lowest on procrastination and highest on knowledge transforming and productivity, while *deep and unorganised students* scored lowest on blocks, perfectionism and innate ability.

Figure 2. Writing conceptions in three profiles.

The ANOVA results showed that the student profiles were statistically different for blocks (F (2, 159) = 8.97, p < .001), procrastination (F (2, 159) = 5.11, p < .01), perfectionism (F (2, 159) = 8.40, p < .001), innate ability (F (2, 159) = 6.00, p < .01), knowledge transforming (F (2, 159) = 4.05, p < .05) and productivity (F (2, 159) = 4.57, p < .05). The effect sizes of blocks (.34), perfectionism (.33), innate ability (.27), and procrastination (.25) were medium, while the effect sizes of knowledge transforming (.23) and productivity (.24) were small.

The results of the post-hoc tests revealed statistically significant mean differences (MD) between the writing conceptions of *deep and organised students* (Profile 1) and those of *unreflective and unorganised students* (Profile 3), with the exception of innate ability (MD = .48, p = .051). Compared to *unreflective and unorganised students* (Profile 3), *deep and organised students* (Profile 1) scored statistically lower on blocks (MD = -.71, p < .001), procrastination (MD = -.68, p < .01), and perfectionism (MD = -.73, p < .01). Meanwhile, they scored statistically significantly higher on knowledge transforming (MD = .39, p < .05) and productivity (MD = .58, p < .05). Moreover, the post-hoc tests showed that, compared to *unreflective and unorganised students* (Profile 3), d*eep and unorganised students*

(Profile 2) scored statistically significantly lower on blocks (*MD* = -.87, *p* < .001), perfectionism (*MD* = -1.04, *p* < .001), and innate ability (*MD* = -.87, *p* < .01). By contrast, the differences between the writing conceptions of d*eep and organised students* (Profile 1) and those of d*eep and unorganised students* (Profile 2) were not statistically significant.

4. Discussion

4.1 Methodological reflection

This study contains some limitations. The investigation of a single university limits the generalisability of the findings to other universities and contexts. Moreover, as the survey concerned international students in the same educational context, a wider range and more balanced distribution of students would be necessary to prevent over-representation of certain student groups. Nevertheless, it should be noted that the participants were drawn from most of the faculties and the distribution was in line with all registered international students. Therefore, both representativeness and generalisability within the university were acceptable.

The second limitation concerns the instrument used in the present study. The scale of writing conceptions has mainly been used among PhD students (Lonka et al., 2014) rather than among bachelor's and master's students (e.g., Martínez-Fernández et al., 2017). Nevertheless, when developing the instrument, the authors stated that the tool for measuring writing conceptions was suitable for general use in higher education (Lonka et al., 2014), indicating that it was not designed specifically for doctoral students. This is supported by the finding that there were no significant differences in writing conceptions between bachelor's and master's students. Moreover, our results show that the tool is also applicable in the context of international students. Hence, expanding the instrument's scope helps create greater understanding of the writing experiences of both international students and also bachelor's and master's students more generally.

Third, though some contextual factors were taken into account, the international status was not highlighted by comparing experiences between international and Finnish students. Therefore, in this study, it remains unknown whether and how international students differed from Finnish students in writing conceptions and approaches to learning.

4.2 Writing conceptions

In the present study, the same writing conceptions emerged as those identified in previous research (Lonka et al., 2014; 2019). In addition, our results also resembled the findings of Castelló et al. (2017) and Cerrato Lara et al. (2017), although *knowledge transforming* was named *knowledge creation* in those studies. Meanwhile, it is necessary to point out that our removal of some items caused slight

differences in perfectionism and knowledge transforming in relation to previous studies. In this study, perfectionism did not represent the endless revising of texts, and knowledge transforming did not examine students' concern about whether their readers understood their text.

Though prior academic background and lack of English language proficiency have found to be obstacles of international students' writing practices (Hyland, 2013; Singh, 2015), this study found that within international students, variables regarding their previous study and mobility experiences, including language factor, did not have significant impacts on writing conceptions. Apart from those students' characteristics, regarding the faculty differences, one possible explanation for the faculty differences in knowledge transforming could be the different requirements for employing academic discourse and processing textual resources across disciplines (Niemelä & Naukkarinen, 2020). Such writing issues may not be the main concern for students in fields of natural science compared with those in the humanities and social science (Niemelä & Naukkarinen, 2020).

In line with the findings of many other studies (Alshehri, 2020; Kim et al., 2016; Lowinger et al., 2016), procrastination was the most commonly reported writing problem among international students at the bachelor's and master's level. Studies among non-international graduate students have found that procrastination emerges when they prepare assignments, formulate and organise final papers and study for exams (Alexander & Onwuegbuzie, 2007; Flett et al., 2012). Fear of failure has proven to be the main reason for procrastination, followed by task aversiveness (Afzal & Jami, 2018; Solomon & Rothblum, 1984). Moreover, the characteristics of task and goal setting can affect students' procrastination (Hoppe, Prokop, & Rau, 2018). In a Finnish context, both bachelor's and master's students are required to complete many writing tasks, including personal and group assignments, written examinations, learning diaries, (weekly) written exercises, and theses. Therefore, such intensive writing might lead to international students' procrastination by intensifying their fear of failure and task aversiveness (Grunschel et al., 2013; Hoppe et al., 2018). In our study, no significant difference in procrastination was found in terms of gender, undergraduate/graduate status or length of time at the host institution, which is in line with previous studies among international students in the US (Lowinger et al., 2016).

Perfectionism usually emerges when there is a gap between expectations and reality (Lee et al, 2020). In a Finnish context, students who use English as a second language face challenges related to their unfamiliarity with the practices and conventions in their field and lack strategies for using academic discourse in writing (Niemelä & Naukkarinen, 2020). When international students set high standards and expectations, for example, developing an academic writing style or expressing opinions precisely, perfectionism can magnify their stress and hinder their writing process (Lee et al, 2020).

4.3 Approaches to learning

The international students participating in this research generally applied the deep approach to learning, with only a minority adopting an unreflective approach to their studies. These results are in line with previous findings among international students in the Finnish context (Sakurai et al., 2014), where the mean scores of international students were highest for the deep approach to learning and lowest for the unreflective approach.

One item measuring the unreflective approach, previously the surface approach, was deleted because it did not fit the model. This meant that memorisation without understanding was still measured (the other item on memorisation was retained), but it was less emphasised in this study. The unreflective approach concerns the way students connect learning contents and relate them to each other. Thus, removing the item supports the changed emphasis of the unreflective approach vis-à-vis the surface approach, as the main emphasis of the former is reliance on a fragmented knowledge base, rather than memorisation without understanding (Lindblom-Ylänne et al., 2018).

Our findings indicated that length of study did not lead to differences in approaches to learning among the international students participating in our research. This is supported by previous findings that university students' organised studying remains stable throughout their studies and is difficult to change (Parpala et al., 2010; Parpala et al., 2017).

4.4 Relations between writing conceptions and approaches to learning

In the present study, a higher score on the unreflective approach to learning and a low score on organised studying were related to maladaptive writing conceptions. This is a novel finding, as previous research has not measured these relationships. Moreover, the fact that the international students in our study scored lowest on the unreflective approach to learning, which is positively related to the belief in innate ability, could explain why they seldom adhered to this belief. The unreflective approach to learning was also positively correlated with blocks and procrastination.

We found that the deep approach to learning was positively correlated with knowledge transforming. The international students in our study were generally adept at comprehending learning content and integrating it with previous knowledge, and therefore most of them perceived writing as a process of knowledge transforming. Previous research has demonstrated that, when producing texts, students' perspectives on knowledge are relevant to their study practices (Lonka et al., 2014). Another study (Martínez-Fernández et al., 2017) has also suggested that international students who hold the conception of knowledge transforming are more likely to adopt the deep approach to learning. Moreover, the deep approach to learning was found to be negatively related to blocks and perfectionism. This was in line with the previous finding that with fluency-focused

intervention, students tend to consider new ideas and propose opposing viewpoints more quickly (Dux Speltz & Chukharev-Hudilainen, 2021). In this process, they are less likely to overplan the structure of sentences and pursue the polished text (Dux Speltz & Chukharev-Hudilainen, 2021).

We found that organised studying displayed a negative correlation with procrastination, which supports the view that procrastination can be predicted by poor concentration and effort management (Rabin et al., 2011; Wolters et al., 2017). Our findings also corroborate those of Burnam et al. (2014), who found that a lack of organisation was the predictor of procrastination in writing papers. In general, a weak ability to plan or organise current and future tasks in daily situational contexts has been identified as one of the most significant predictors of academic procrastination (not limited to writing experience; Rabin et al., 2011).

4.5   Learning profiles and their relationship to writing conceptions

Our results demonstrated that the learning profiles categorised by approaches to learning were independent of each other. The most common profile was *deep and organised students*, which resembled the profile *students applying a deep approach* identified in previous studies (Asikainen et al., 2019; Haarala-Muhonen et al., 2017). In turn, *unreflective and unorganised students*, a profile similar to that termed *students applying a surface approach* in prior research, contained the lowest proportion of students, which is in line with previous findings (Asikainen et al., 2019; Haarala-Muhonen et al., 2017; Parpala et al., 2010). Students in this profile faced the greatest challenges and, unsurprisingly, scored the highest on maladaptive conceptions and the lowest on adaptive conceptions. It is worth noting that while the international students participating in this study generally scored low on innate ability, *unreflective and unorganised students* nonetheless scored higher in this conception than did students conforming to the other two profiles.

Deep and unorganised students, termed *unorganised students applying a deep approach in previous studies* (Asikainen et al., 2019; Haarala-Muhonen et al. 2017; Parpala et al., 2010), scored higher on procrastination than did *deep and organised students* (below the level of statistical significance). This supported that organised studying was negatively related to procrastination, and it was in line with previous studies (Rabin et al., 2011; Wolters et al., 2017). Furthermore, it demonstrated how organised studying and the deep approach to learning act in tandem. The deep approach to learning helped *deep and unorganised students* tackle problems of procrastination, while *unreflective and unorganised students* struggled due to their inability to apply the deep approach or organised studying effectively.

4.6   Implications for future research and practice

The study proves the usefulness of combining writing conceptions with approaches to learning. These conceptions, which are typically divided into maladaptive and

adaptive constructs (Boice, 1993; Lonka et al., 2014), were all related to approaches to learning in our results. For example, the unreflective approach to learning correlated positively with all the maladaptive writing conceptions. Thus, the study contributes to a more complete description of students' writing experience along with their learning process. The study also demonstrates that neither writing conceptions nor approaches to learning are significantly influenced by the characteristics of international students and their previous experience. Rather, these conceptions and approaches are context specific. For example, a number of studies have proven the relationship between approaches to learning and perceptions of the teaching-learning environment (Postareff et al., 2018; Rytkönen et al., 2012; Yin et al., 2022). Nevertheless, the precise effect of the teaching-learning environment on the emergence of writing conceptions remains unknown among bachelor's and master's students.

At a practical level, this study suggests that international students' writing conception challenges could be regarded as issues of adapting to the new teaching-learning environment instead of insurmountable barriers. Adopting this view could lead to more productive and accurate causal attributions regarding their challenges (Soriano-Ferrer & Alonso-Ianco, 2020). For example, English as a second language (L2) need not necessarily be viewed as a disadvantage for international students when they enter tertiary education or briefly visit other universities. If L2 international students are able to manage their time and effort well, they will experience less writing procrastination and gradually become active and productive writers. Moreover, to overcome writing blocks and generate new ideas during their writing, international students could consciously apply the deep approach to learning. Meanwhile, students should avoid reliance on the unreflective approach to learning, as it can limit their progress through a belief in innate ability and through the occurrence of blocks.

Since the length of study at the host university and the number of previous writing courses did not account for differences in writing conceptions, to strengthen international students' writing conceptions, teachers could provide more positive feedback on how students reflect on their own learning. Moreover, during intensive courses and supervision, in particular, teachers should provide a reasonable schedule by clarifying weekly or phased requirements and breaking down tasks. This helps promote students' time and effort management and maintain their self-affirmation as productive writers (Mendoza et al., 2022). Students consider the workload to be heavier in the absence of clear instructions, which may cause them to lose direction and fail to write actively and regularly. In this process, the interaction between students and teachers is crucial.

5. Conclusion

This study explored the interrelations between international students' writing conceptions and approaches to learning. The study classified students into three groups based on combinations of approaches to learning and demonstrated group differences in their writing conceptions. The majority of international students belonged to the deep and organised learning profile, and they scored lowest on procrastination and highest on knowledge transforming and productivity. Previous writing experiences failed to exert a strong effect on writing conceptions. However, learning processes affected writing conceptions. Students' ability to reflect on their learning and organise their studying seemed to play an important role in their maladaptive and adaptive writing conception constructs. Therefore, as previously mentioned, teachers could provide positive feedback on how students reflect on their learning and, for intensive courses, provide a reasonable schedule with clear requirements and serial tasks.

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