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Through the eyes of the disciplines – student perspectives and positionings towards internationalisation-at-home

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ABSTRACT

Debates around internationalisation-at-home (IaH) focus on the benefits accrued to students from the integration of internationalisation dimensions in their studies, curricular developments and interactions with international students, but, with scant attention to how these vary in different subject areas. In this article, we focus on the disciplinary experiences and framings of internationalisation from the perspectives of students in two Swedish universities. Drawing on 67 interviews with students sampled across different subject areas, we examine how the disciplinary definitions of study objects and pedagogic approaches filter the students' experiences and shape their views around IaH, and their ambitions for the future. Our findings suggest first, a discipline-specific set of positionings regarding the nature of subject areas as lenses through which internationalisation is understood. Second, the students hold strong views around the contribution of IaH in strengthening the disciplines themselves. In addition, the student voices paint a dynamic picture of internationalisation positions, not always consistent with disciplinary stereotypes.

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Introduction

Internationalisation-at-home (IaH) is one of the key dimensions of comprehensive internationalisation processes in higher education (Hudzik 2011), particularly important in times of restrictive mobility of students. It was originally defined broadly to include any international dimension other than mobility of staff and students (Crowther et al. 2000), and emerged as a response to the low number of European students who took part in mobility programmes (Almeida et al. 2019; Wächter 2003). Driven by globalisation influences on higher education, IaH is valued by universities for its assumed contribution to high quality learning contexts, increase of students' intercultural and international competences, and the formation of global citizens (Dagen and Fink-Hafner 2019; Hudzik 2011; Stier 2010). It refers to the 'purposeful integration of international and intercultural dimensions' into the curricula and

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experiences of students during their studies (Beelen and Jones 2015, 76), and as such, is increasingly embedded in the narratives of universities and faculties across Europe and beyond.

This is not a process without difficulties. Universities have been reported to use uncritical pedagogies that reproduce unequal North–South relations in the classrooms, to embed internationalisation policies in instrumental ranking exercises (Hazelkorn 2018), to adopt inappropriate internationalisation practices in their effort to emulate research universities (de Wit, Yemini, and Martin 2015), or they simply lack the skills, institutional practices or resources to apply in-depth international perspectives in their curricula (Hartwell and Ounoughi 2019). Given these difficulties, advancing an understanding of how students experience IaH is key to uncovering the mechanisms through which the potential of internationalisation enriches students' international competences.

IaH, a term originally coined by the head of International Affairs at Malmö University College Bengt Nilsson in 1998 (Nilsson 2003), has become a central dimension of the universities' strategic agenda in Sweden. A recently conducted inquiry urged the government to adopt a more systematic approach towards policies and practices on internationalisation (cf. SOU 2018:3). It suggests, among others, that 'All students who earn university degrees have developed their international understanding or intercultural competence' (SOU 2018:3), and thus, connects the wider internationalisation debates to university curricula. It signals further expectations in this direction from the Swedish state to universities, that are already active in adopting internationalisation elements. Several universities and courses use English as the medium of instruction, almost universally at the post-graduate level; have high numbers of international researchers and lecturers; invest in international research collaborations; and, take active part in international networks and research activities.

The way in which IaH is developed, integrated and experienced by students can vary greatly, across institutions, faculties and departments. Universities mediate internationalisation policies and enact strategies to serve their missions, and institutional objectives, given their history, size and location (Alexiadou and Rönnberg 2022). In addition, the different academic and disciplinary organisations of natural and social science faculties frame the engagement with internationalisation differently.

Disciplines, as ways of organising and defining knowledge domains, academic practices and socialisation of students (Becher and Trowler 2001; Trowler, Saunders, and Bamber 2014), shape learning and teaching cultures, as well as the attitudes of teachers, researchers and students towards teaching practices and education values (Neumann 2001; Sawir 2011). Internationalisation of the student experience through curricula, teaching and learning practices, will have different meanings across disciplines, and the professions they correspond to (Leask and Bridge 2013).

In this article, we focus on internationalisation-at-home experiences of students in Swedish Universities from a disciplinary perspective, and account for the different academic and disciplinary organisation of sciences and social sciences, an under-researched dimension (Clifford 2009; Leask 2015). In particular we address the following research questions (a) How do students from different disciplinary contexts experience internationalisation in their studies? and, (b) what are the subject-specific narratives that define their position?

Internationalising higher education in Sweden

Following a period of massification and expansion of HE in the post-war period, Swedish reforms of the university sector in the early 1990s signalled a shift towards marketisation and decentralisation as overall guiding principles. Today Swedish HE is still located within this reform paradigm further developed with the Bologna process, and a more recent reform period characterised by further institutional autonomy (Börjesson and Dalberg 2021). Contemporary HE is increasingly internationally-oriented and embraces features such as competition, performance-based measures and accountability while retaining the goal of widening participation.

Sweden has a long-standing commitment to promoting internationalisation, and appointed an agency-led commission as early as the 1970s. As a result, internationalisation was an aim included in the 1977 HE Act, although implementation was varied and slow during that first decade. In the 1990s however, noticeable intensification efforts began. The reasons were several, connected to the wider international contexts that prompted internationalisation activities; for example, Sweden took part in the first Erasmus programme in 1992, joined the EU in 1995, and the Bologna process in 1999.

In 2005, a government-initiated strategy for HE internationalisation was launched, further contributing to internationalisation in the form of harmonisation of study programmes and outbound mobility, explicitly orientated towards Europe. IaH is mentioned in the 2005 strategy where there is an expressed awareness that student mobility alone is not enough. Thirteen years later, a proposal for a revised internationalisation Strategy was published, (SOU 2018:3), taking a more comprehensive and ambitious approach that included both education and research. A tangible result from this proposal was a revision of the internationalisation goal in the HE Act to explicitly connect it to improved quality in all aspects of HE (Gov.Bill 2020/21:60). In addition, IaH was explicitly addressed and linked to the overall goals of internationalisation. The Strategy report further highlighted the lack of an evaluation regarding how different HEIs actually work with IaH (SOU 2018: 3, 266), noting the limited knowledge on the variation to IaH approaches within institutions and across disciplines.

Turning to students and HE programmes, about 385,000 students are enrolled in Swedish HE (UKÄ 2021) with social sciences as the largest area of study, that attracts about one-third of HE students. Natural sciences and technology also expanded their share of students over time, prompted by campaigns to increase student enrolment in these fields (Börjesson and Dalberg 2021). HE programmes are stipulated to follow both national and programme-specific goals. Within these legislative frames, universities and faculty exercise extensive autonomy in developing programme plans and course syllabi, selecting course literature, and deciding on forms and processes in teaching and assessment, to meet national and programme goals (Segerholm et al. 2019). Actions to internationalise curricula are largely left to the academic teams responsible for the design and delivery of programmes – a feature of many HE systems, that makes the role of academic faculty central in facilitating or hindering internationalisation (Calikoglu, Lee, and Arslan 2022). Taken together, there is a significant discretionary space for institutions, disciplines/subjects and departments to elaborate and work on different aspects of IaH within the current regulatory framework.

Disciplines and their pedagogy

The role of disciplines in shaping the teaching and learning experience in higher education is still relatively unexplored in relation to internationalisation, despite early calls for research into disciplinary perspectives (Sawir 2011). Still, there are several studies that establish the connections between disciplinary and other cultures within higher education, mediating and shaping the students' learning and teaching experiences (Kreber and Castleden 2009; Neumann, Parry, and Becher 2002). We draw on definitions of disciplines as organising principles, constituted by knowledge domains and social constructions (Becher and Trowler 2001), secured by:

> (their) place within academic institutions … and characterised by common mainstream core discourses supported by the career structures of teachers and students, journals, departments, training programmes, awards, reputations, textbooks and specialist associations. (Tribe 2022, 4)

As such, disciplines-in-action contribute to the construction of disciplinary cultures, characterised by 'day-to-day intellectual and social practices' most academics identify with (Jessop and Maleckar 2016, 698) and socialise students in (Lindblom-Ylänne et al. 2006). We focus in particular on two dimensions of disciplines, and examine these in relation to IaH experiences. First, the paradigmatic perspective of disciplinary affiliation and its defining epistemological and social dimensions, and second, the pedagogy implications of these perspectives.

Disciplinary definitions

In his 1973 work, Biglan highlighted that modern (US) universities and departments are organised according to fields of specialisation with their own characteristics and effects on teaching, research and social activities. His research classified academic areas according to three core dimensions, (a) as hard–soft, a typology that depends on the 'paradigmatic' or 'idiosyncratic' nature of their method and content; (b) their concern with 'application to practical problems' (pure-applied); and, (c) their 'concern with life systems' (Biglan 1973, 202). The first two of these dimensions were applied beyond the US context and enduring in capturing the descriptions of different subjects according to their measure of consensus about their knowledge object, methodological and theoretical approaches. Subjects with a high paradigmatic cohesion (e.g. Physics) are characterised by 'greater functional differentiation', accumulation of knowledge, and a coherent, vertically-organised structure of knowledge (Muller 2009, 210). Disciplines with no shared paradigm have low differentiation, higher reliance on external relations to other subjects, and a more horizontal and segmented structure of knowledges that take the form of a series of specialised knowledge-languages (Moore and Muller 2002).

Following Biglan's work, Becher (1989) formalised these distinctions within higher education research and teaching, and developed a four-dimensional scheme that aimed to capture disciplines (still within the US context). The categories resulting from his research were 'hard-pure', 'hard-applied', 'soft-pure' and 'soft-applied', reflecting the differences across disciplinary areas and the ways these shape shared understandings around content, methodology, research and teaching.

Our purpose in this study is not to reify or test the accuracy of disciplinary classifications. Indeed, we acknowledge the contemporary literature that revisits those early

classifications and accounts for the increased diversity and complexity of disciplines, the growth of interdisciplinarity and emergence of new subjects (Becher and Trowler 2001; Trowler, Saunders, and Bamber 2014); but also, the tight connections between universities and the still dominant hard–soft and pure-applied dichotomies (Simpson 2017) that often work against interdisciplinary research (Ylijoki 2022). We use the paradigmatic classifications of the disciplines as a heuristic device to examine how these mediate other university learning experiences and expectations – in this case, focusing on internationalisation-at-home. In doing so, we avoid making claims ourselves about defining features of particular disciplines. We are interested however in the students' understandings of their own subjects, the degree to which there are shared understandings of disciplinary affiliations, and how their narratives around disciplines and their pedagogy shape their positions towards internationalisation.

Disciplines and pedagogy

Since the various intellectual fields structure themselves and the conditions for knowledge production differently, the pedagogy they follow reflects such differences. As Sawir (2011) suggests, disciplines are important in the development of beliefs amongst academics about how knowledge is constructed, and how knowledge is taught in particular higher education subjects.

So, the 'hard sciences' follow patterns of research production based on experimentation that integrate new knowledge into existing knowledge structures, in ways that aim at generalised explanations, and hierarchically-constructed scientific principles. The pedagogy in this paradigm relies on immersing the students into the scientific way of thinking, the experimental method for providing legitimation and synthesising phenomena and theories, and the gradual integration of large bodies of knowledge, as the necessary background for progression. The 'softer' social sciences rely on, what Biglan (1973) called, more fluid and constructivist forms of knowledge and knowledge production, where methodologies are (usually) weaker, and contingent on social contexts. In this paradigm, legitimation for new knowledge often comes from conflicting approaches, epistemological assumptions, or definitions, and is of a cumulative, rather than integrative, nature (Moore and Muller 2002). The pedagogy of (most) social science disciplines follows a pattern of accumulating conceptual and theoretical approaches, with an often strong orientation towards contextual, situated forms of knowledge. Because of their clearer orientation towards social and cultural intellectual and professional fields, questions of ethics, power and relevance often define the object of learning and the legitimation languages used to include these into the curricula.

These differences in disciplinary approaches to knowledge and pedagogy filter internationalisation conceptions, practices and experiences of students. The literature on IaH that connects these to disciplinary affiliations, suggests that the hard sciences are perceived by their academic representatives as more global in nature (Agnew 2012; Iosava and Roxå 2019), but are also often resisting engagement with internationalisation discourses (Clifford 2009). On the contrary, the softer disciplines are seen to be more open to internationalisation discourses and practices, for a variety of reasons to do with the nature of the discipline and the perceived skills needed by the students (Bulnes and de Louw 2022; Leask and Bridge 2013).

Methods

Our research draws on a larger project on higher education internationalisation,[1] and follows a qualitative, exploratory design in the form of a case study (Yin 2018) of students' experiences of and positions to internationalisation in relation to their disciplines. Drawing on the literature, we expect institutional and disciplinary contexts and pedagogies to play an important role in how students view and experience internationalisation (Lindblom-Ylänne et al. 2006; Sawir 2011). This theoretical premise underpins our purposive sampling (Robinson 2014) of students across two of the largest universities in Sweden in the academic years 2018–2020. The two universities are rather similar in size (39,000 and 36,000 students), research output and organisation (listed as 'very research active', as 148 and 365 in the QS Global World Ranking in 2022).

Sampling and data collection

Our sampling strategy was to include students enrolled in degree programmes in the two universities, and to fulfil two primary criteria. First, the students would need to be studying in disciplines that reflect the 'hard-soft', 'pure-applied' dimensions; and second, they would need to have completed a minimum of two years of undergraduate education in order to have sufficient experience of teaching, learning and pedagogy in their respective subjects. Within these selection parameters, we decided to concentrate on certain degree programmes in the natural and social sciences of each university, and to aim for approximately 15 students in each cluster. Thus, the selection of disciplines intended to capture a range of subjects that correspond to Becher's (1989) categories of 'soft-pure', 'soft-applied', 'hard-pure', 'hard-applied' (Table 1). In total, we conducted interviews with 67 students across four faculties, and we opted for individual interviews rather than focus groups as the literature suggests they are more effective in generating deeper insights and a broader range of themes (Guest et al. 2017). Because of the voluntary nature of participation in the study, we did not control for particular demographics of the sample. Out of the 67 students, 34 were women, 58 were between the ages of 19–25, and 14 had a nationality other than Swedish (and, in 11 of these cases, had some previous study abroad experience). At the time of the interview, all 67 students were enrolled in one of the programmes depicted below.

The recruitment of the students took place through presentations of the project in teaching groups (none of which were the researchers' students) where we requested for volunteers; through posting invitation letters in learning platforms; and, snowballing techniques. We acknowledge that this process of recruiting interviewees may have led to

Table 1. Sampling and data collection.

Social Science programmes (a total of 37 students)		Science programmes (a total of 30 students)	
	Business (General) Economics International Business (IB)	Astronomy	
Soft-Pure	Political Science	Theoretical Physics	Hard-Pure
Soft-Applied	Business (Service Management) Education	Chemical Physics Civil Engineering Mechanical Engineering	**Hard-Applied**

a selection of students who may have particular views and/or experiences around internationalisation, or an interest in the topic. Still, the analysis reveals a large spread of positions across the participants, suggesting that the selection process has not led to a restricted set of positions. The students could select to have the interview conducted in English or Swedish, with ten students preferring to conduct the interview in Swedish. In these cases, sections that were selected for citation were translated to English. Also, the majority of the interviews took place physically, with a small number conducted online, because of scheduling at times convenient to the students that fell outside our fieldwork visits.

The interviews addressed the students' views on internationalisation and experiences of IaH, and the interview guides were informed by three sources. First, the Swedish HE legislation that expects all students to develop 'international understanding or intercultural competence'; Second, the literatures on internationalisation-at-home and internationalisation that emphasise questions of content knowledge, interculturality and teaching and learning contexts. We did not define the concept of internationalisation explicitly to the students, but we used its core definitions for the construction of our interview agenda (Leask and Bridge 2013; Beelen and Jones 2015). Finally, we took insights from the literature on disciplinary organisation of content and pedagogy (Muller 2009; Neumann, Parry, and Becher 2002). Following an introduction where we provided information about the project, and explained the voluntary nature of participation, and confidentiality (Vetenskapsrådet 2017), the interview questions addressed the following topics in a semi-structure format followed by prompts: subject knowledge, course content and internationalisation; organisation of teaching and learning; formal and informal activities; and, questions on employability, and future careers.

Data analysis

Our interviews, on average lasting 30–40 minutes, were audio-recorded (with consent from the participating students), fully transcribed and anonymised. The analysis followed a systematic and interpretative approach, aiming to understand the students' positions, through their articulations of their university experiences. We analysed the interviews through an initial inductive process of thematising, where we deconstructed individual transcripts and identified first-order themes. These themes constitute the basic analytical unit, and are defined as a way to describe meaning in the text, as a means to give shape and form to meaning, and always representing a reduction from it (Alexiadou 2001). Given the large number of interviews in this study, these first-order themes were initially identified based on the analysis of a first set of 20 transcripts, randomly selected from the natural (10) and social sciences (10). The range of the subjects represented in our sample was large, so the first-order themes already represent a degree of abstraction from the invivo references in the transcripts. So, for instance, 'methodological approach' is a first-order theme that emerged from responses to questions around disciplines, such as 'how would you define your discipline?', and 'what makes your discipline distinct from other areas of social/science?'. It captures verbatim descriptions that refer to 'lab-work', 'documentary analysis', 'huge amounts of reading', 'compiling data', 'synthesising information', 'time-series

research' etc., as methodologies used for knowledge production and accumulation across different subject areas. The themes identified in this first stage were then used on the rest of the transcripts.

This process led to a cycle of reviewing of the first-order themes to check their fit in the different transcripts, as well as their strength as an organising concept. Describing the characteristics of these themes, and the functions they perform in the text (i.e. how they are used in the students' narratives) allowed us to explore the data that supports each theme, as well as secure the conceptual boundaries around the themes. This was followed by the construction of more abstract, second-order themes, representing a clustering of several first-order themes (Alexiadou 2001). These were then related to the research questions and the literature on disciplines and disciplinary pedagogy. This process contributed to the creation of three larger aggregate categories (Gioia, Corley, and Hamilton 2013) that provide the structure for the presentation of the findings. We give an example of the analysis process in Table 2 below.

We note that we found no difference in the responses of the students by university affiliation, hence this does not feature in the presentation of the findings. Instead, the findings are structured on the basis of the three emerged categories: The nature of the subject; Pedagogic approaches and internationalisation competences; and, Subject and future employability. These categories capture and describe the students' positions towards internationalisation in their studies, as these are filtered by their disciplinary contexts.

Findings

In general, there was consensus across the students that internationalisation is a positive dimension for university environments. They expressed an interest in international issues as well as the desire that these are embedded in learning experiences. But there were also differences in the positions of students with regards to the rationales articulated around internationalisation and its connection to their subject-contexts. These differences referred to their conceptions of their study object, their experiences of pedagogy, skills development and future employability possibilities connected to internationalisation.

Table 2. Analysis process, an example.

First-order themes	Second-order themes	Aggregate category
– Degree of specialisation – Relation to research – Context dependency – Relation to the natural/social world – Methodological approach – Knowledge universality	Subject knowledge and disciplines	The nature of the subject
– Identifying global issues and problem solving – The role of science in problem solving – Responsibility to contribute to public debates	International relevance	

The nature of the subject

The framing of internationalisation through subject lenses maps to a considerable degree on the literature around disciplinary classifications. Still, the rationales that underpinned students' understandings of internationalisation within their disciplines show an interesting pattern of differences and overlaps depending on the specific issue discussed.

Subject knowledge and disciplines

The science students (in both applied and pure fields) used a consistent narrative about the nature of their subjects, suggesting a high degree of socialisation into disciplinary discourses and rationales. Subject knowledge is seen to be 'heavy on facts … and experiments' (Paul, Physics), building-up to the large body of knowledge available today, and suggests a knowledge organisation that is sequential and hierarchical. It is these features of the science disciplines that make them viewed as rather standardised across national boundaries and hence, easy to conceive as 'universal' bodies of knowledge (Obren, Civil Engineering) both in their pure forms, and in relation to their universal applications:

> You can apply your knowledge in every context … My German friend is an engineer, we talk about engineering … it's very similar (Axel, Mechanical Engineering)

The consistency of the science subjects and their universality is also explicitly related to the anchoring of these disciplines into the natural world. The science students discuss their subjects as independent of national or social contexts, since the methodology that produces hard knowledge relies on standardised experimentation that is internationally accepted as the cannon:

> Natural science studies what laws carry nature and the universe. We don't say 'this is the Chinese law of governing the Earth' … There are elements that are universal (Muchen, Physics)

Research and methodology are seen to systematically test and extend existing theories and constantly revise and strengthen 'what we know so far' (Carin, Civil Engineering), and so integrate and subsume 'existing ideas within more generalising propositions' (Maton and Muller 2007, 24). Interestingly, the integrative and universal properties of the science disciplines are also shared by the students of Economics:

> In Economics you have clear progression, you cannot understand a third year course if you haven't done the first two years (Bjorn, Economics)

Similarly, to the natural sciences, it is these properties of integrating parts of the discipline in a progressive form, as well as the approaches to methodology and theory that make the subject viewed as international in nature.

The discussions around the nature of the different social sciences show more variation across the subjects. The only students within our sample that view their subject as fundamentally national in nature study Education and Service Management. Despite the recognition that the Education discipline draws on 'universal knowledge about children and theories on children's development' (Emil), Education students define their study along the lines of professional practice (see also Alexiadou, Kefala, and Rönnberg 2021). The subject knowledge is described as oriented towards the Swedish 'public sector' and

'highly contextual' parameters of practice in schools (Elba, Isa, Kaisa). This view of the subject as national, contextual, and practice-oriented is consolidated by courses that give few opportunities for the students to study in a language other than Swedish, as well as fairly limited international research exposure (Molly, Sandra).

Economics and Education seem to occupy two ends of a spectrum regarding the students' positions towards their own subjects and its knowledge-universality. The students in the other subjects of our sample (IB, (General) Management, and Political Science) have a very international outlook and consider their subjects 'global'. This is manifested primarily in the content of the courses that have the study of 'international things' as their object:

> We studied politics in the world, international relations, my field is very global … We had an entire course about the EU institutions … we had the vice-President of the European Commission as a guest lecturer. And when I was abroad last semester, we were talking about IMF, the World Bank … (Pat, Political Science)

This is interesting to compare with the students of Economics who also consider their subject international and even universal, but because of its applicability and generalisable nature, rather than the focus of its particular components: 'issues you deal with are not in a particular country, but it's the same theory regardless' (Sigrid, Economics).

International relevance

With the exception of the Education and Service Management students who define the relevance of their study primarily in national and contextual terms, the other students across the natural and social sciences discussed their subjects as having international relevance. The reasoning for this draws on the application possibilities the subjects offer, with only small differences in the particular arguments to support these. What unites the students' positions is the theme of 'problem solving'. The relevance of the different disciplines and their role in contributing solutions to global problems is a strong narrative that brings together students across groups. Such problems range from global warming and the role of scientists to use scientific methods to find solutions (Holly, Physics), tackling climate change that leads to global migration (Alice, Astronomy), the rise of political extremism and gender inequality (Pat, Political Science), global poverty and environmental issues (Johanna, Political Science; Kayne, IB, Song, Management), post-colonialism (Fredrik, Political Science). The discussion concerns first: their subject areas having a role to play in these questions, using the application of critical skills in order to contribute solutions to big and complex global problems:

> we are being taught how to solve problems … we can use our knowledge to help in many problems the world is facing (Sammy, Astronomy)

> (we get taught) being analytical, being critical and looking one step further … I definitely think that my courses give me the tools I need to apply them later … communicate with policy makers, or others in the public domain (Johanna, Political Science)

In addition, a second set of arguments is about having a clear responsibility to contribute to national and international public debates. This was a strong narrative from students across subjects, who saw this contribution both in the technical domain of problem solving, but also in participating in debates that shape public opinion:

> Science always tried to stand to the side, provide the facts. But now, lots of people say they don't believe in the facts. That causes lots of problems, especially when they don't believe something as huge as the climate crisis … it's a fine balance because you don't want to get too political, but … it's very important that science has influence on how the world is run (Sixten, Physics)

In these respects, questions of relevance of the different disciplines to the solution of global problems, unites students in an epistemic-ethic of social responsibility that is future oriented. This corresponds to the critical, transformative and reflexive mindset that the literature identifies as the basis for global citizenship development (Lilley, Barker, and Harris 2015).

Pedagogic approaches and internationalisation competences

The students' positions around the nature of their disciplines are reinforced by ideas of pedagogies in how the subjects are organised.

Collaborative learning

Collaborative learning is a second-order theme constructed in the student narratives, and described on the basis of 'Swedish styles' of teaching and learning. In the sciences, this style is embedded in all courses, and aims at student-driven study groups (Alice, Astronomy; David, Theoretical Physics). Group-work complements the considerable amount of 'self-studying' the 'huge material' (Mikael, Sixten, Physics), seen to be individual exercises. Collaborative learning built into both the pure and applied natural sciences takes different forms depending on the subject, with concept-based group-work a feature of the former, and laboratory and project work dominating the latter. Cooperation and group-work are seen as beneficial for problem-solving, necessary in fields that are highly competitive because of the large returns to technological innovations (Sammy, Astronomy; Edvin, Civil Engineering), but also better ways of working and constructing positive work environments (Albin, Chemical Physics).

This dimension of the learning culture is also found amongst the social science students, who talk mostly of group-work during seminar activities as well as projects and presentations (Kanye, Rebecca, Management). The students agree that features of collaborative studying contribute to a deeper understanding and learning of the subject, a more applicable set of knowledge skills, as well as developing collaboration competencies seen as part of future employment skills:

> All of the courses focus on cooperating … focus on working together to solve a problem … (Lecturers) ask questions, to make sure we can arrive at a conclusion, rather than giving us the right answer. So, in that way, it prepares us a little (Sammy, Astronomy)

The science students connect these pedagogical approaches to internationalisation competences, and in particular to their view of what internationally-mobile scientists, researchers and 'problem solvers' need in the future. For the social science students, these approaches are equally important since they build communication, social skills, as well as problem-solving skills, but for several of those students there is also a big emphasis on interculturality.

Interculturality and diversity as a resource

Students in Economics, Political Science and IB programmes show an interest in culturally-sensitive learning environments, and this relates primarily to mixing with international classmates, learning together and from each other, and 'seeing how things can be done differently' (Stig, Economics). These students see the relevance of soft skills for their future work, a similarity they share with the natural science students, but this is still at a rather abstract level.

It is the Education students who make the most concrete connections between diverse intercultural classrooms, and their own future professional practice. For students in Education programmes, this is linked to the high likelihood they will work with children and parents from different linguistic and cultural contexts in a very multicultural Sweden. As a skill of internationalisation in the broadest sense, interculturality is appreciated as an academic concept through courses dealing with diversity. Many of these students make explicit references to 'diversity as a resource' in their own interactions with students from different contexts, and this refers to other Swedish students with an immigration background. So, internationalisation is to some extent understood as manifested by the presence of people with international experiences within their classrooms (and in future workplaces), but limited in other respects. There is a widespread acknowledgement that the Education programmes, have little intentional integration of critical intercultural perspectives. These findings are consistent with studies in teacher education beyond the Swedish context, where students are found to have 'received largely monocultural socialization' (Sjøen 2023, 140).

Curriculum flexibility & language of instruction

There are two further dimensions of importance to the learning environment. One concerns the possibility for students to make choices in constructing their own programme, that can either facilitate or hinder IaH. Here, there is large variation across subject areas, with the IB and Political Science programmes offering the most options. The natural science students did not consider elective courses beyond their programme, and the teacher education programmes do not allow elective courses to any larger extent. There is also a large variation regarding the language of instruction used. Within social science, most subjects (Economics, General Management, IB, Political Science) provide undergraduate education in a mix of Swedish (the dominant language) and English. The students seem very appreciative of this mix because of the language skills it helps them develop; the wider exposure to international research in their subject; and the options for further study and employment. Only three applied subjects in our sample (Service Management, Education, and Mechanical Engineering) have the entirety of the course taught in Swedish, something that students view as 'understandable' but 'problematic' (Robin, Mechanical Engineering). Interviewees in these subjects view their education as primarily oriented towards the Swedish labour market, so having courses in English would be beneficial but not really vital. Still, some of the Education students saw the use of English as more crucial for their work, because of the need to communicate with parents or children from other contexts (Molly), as well as for getting exposure to international research knowledge (Hanna).

The opposite is true for the Physics and Civil Engineering students across both universities, where studying is entirely in English. This is seen to have several benefits

regarding both the discipline itself and internationalisation as a process, although, this is not a process without a cost:

> It's natural to have the education in English in terms of the benefit of learning … in our field, it would be devastating not to … , it's a little sad that I can't speak in my own language about the field I'm studying (Arvid, Civil Engineering)

The interviewed students in both the science and Education programmes, thus seem to be aware of the costs of having their entire programme in English or Swedish only, and the tradeoffs this brings.

Subject and future employability

The nature of the discipline and the skills and competences students discuss in the different subject areas, come together in their perceptions of their own employability and future aspirations. The dimension of highest significance in the students' responses regarding employability and internationalisation is the applied nature of the subject of study. The most nationally-oriented subjects in our sample are Education, Service Management and Mechanical Engineering, with students sharing a similar approach towards employability, albeit for different reasons. The Education and Service Management students consider the nature of their discipline too Swedish-specific to have applications in the international arena, with a content that is focused on legally-defined practices of education and business auditing, and (for Education), public-sector working conditions. The Mechanical Engineering students are not constrained by similar issues, but have consciously selected a branch of Engineering that is oriented towards the Swedish labour markets. These three subjects also have Swedish as the medium of instruction, which is another dimension that makes these disciplines appear generically national.

In all these parameters, the rest of the students take the opposite position. The natural science and Economics students view their discipline as allowing international mobility and opening possibilities for future global work, because of the very nature of the subject ('Economics is a good passport', Stig). Other social science students expressed the ambition and desire to work internationally for short or longer periods, and felt that their education is preparing them mainly because of the orientation of their subjects towards international issues, and the soft skills of communication and critical thinking (Pat, Political Science; Emma, IB). For the students in the natural sciences, international mobility is tightly connected to the degree of ambition one has for developing as a scientist. Many of the high-level scientific developments are taking place in universities and centres abroad: 'if you want to continue in academia you need merits from abroad' (Jon, Chemical Physics).

The collaborative skills they develop through their courses, group-work learning, and the acquisition of high-level English are seen as vital in their future ambition for a mobile international career.

Conclusions

The literature on internationalisation explores the potential of embedding international and intercultural dimensions into the curricula, and in teaching and learning

environments, but also examines the various hindrances in this process. In particular, what Leask (2015) calls 'cultural blockers' correspond to assumptions, values and beliefs that arise from within particular disciplinary communities, and may be antithetical to, or sceptical of 'the validity of the concept of internationalisation' (p. 106). Hence, the very nature of different disciplinary areas may act as a hindrance to embedding internationalisation within university environments. Our research concerned how students from different disciplinary contexts in Swedish HE experience internationalisation in their studies, and the subject-specific narratives that define their position. What we have found raises two important points in linking disciplinary perspectives to a successful incorporation of internationalisation in higher education.

The first point concerns the filtering of internationalisation views through powerful ideas about the nature of the discipline. The students in our research illustrate how strongly the disciplinary paradigm within which they are educated shapes their view of what is international, and what is possible/desirable to internationalise. The framing for these students is closely linked to perceptions of the nature of subjects they study and their socialisation in particular ways of thinking, and developing a sense of belonging to a disciplinary community. So, their views on valid and valuable sources of knowledge, approaches to learning, and experiences of studying, appear to be powerfully shaped by the disciplinary cultures of their subjects. The hard-pure (Astronomy, Physics), hard-applied (Chemical Physics, Civil and Mechanical Engineering) and soft-pure and applied subjects (Economics, General Management, IB, Political Science) were seen as disciplinary areas international in their nature. For natural science students, this was even more pronounced as the disciplines were seen to be fundamentally universal because of their object of study (the natural world), and the methods of inquiry that underpin and validate their knowledge claims – the latter shared also by Economics students. Across most natural and social sciences, conceptions on the international nature of disciplines were tied to the relevance of the subjects and the need for solving global problems. The notable exceptions to these strongly held views came from Education and Business (Service Management) where the professionally-oriented, national and contextual nature of study defined the objects of study in non-international ways.

These positions have implications for how IaH is experienced, with the former students having the belief that their subjects are already internationalised, a finding similar to other research (Agnew 2012; Becher and Trowler 2001; Bulnes and de Louw 2022). But, this was also accompanied by an openness to further internationalisation, in contrast to what has been reported for 'hard' disciplines (albeit by faculty members) in other studies (Clifford 2009). Amongst the least internationally-oriented subjects, Education students were more sensitive to discussions around interculturality, and the need to connect IaH with more localised and applied versions of professional practice.

The second point we wish to highlight refers to students' views of IaH as an instrument of strengthening the discipline. Here questions of perceived relevance and usefulness on having international dimensions in the subject become relevant. Students overall provided positive discourses around these themes, even though the arguments diverged across the natural and social sciences. So, we find: (i) Strong positionings around the subject itself and how internationalisation practices strengthen the research basis and secure the knowledge foundations and methodological validation of the discipline (a

natural sciences and, to some extent, Economics perspective); (ii) Reflective arguments about internationalisation enhancing the deliberative and critical properties of subjects (mostly, but not exclusively, represented by the social sciences students); and, (iii) Perspectives that emphasise the need to include global and intercultural dimensions in the curriculum because of future employment that will entail dealing with people from around the world or with a migrant background, as colleagues, school children, or clients, (a view represented primarily by Education and few social science students, but also present amongst the natural sciences).

Our findings are consistent with other research accounts that find the organisation principles, definition of knowledge objects and pedagogies, and socialisation practices of the different disciplines shape the students' experiences of studying. Still, our data also suggest that the students' views in relation to internationalisation are dynamic and do not conform to binary classifications of positions by discipline. There are for instance, considerable overlaps across disciplines in shared beliefs about internationalisation as a problem-solving opportunity for future graduates, as well as the type of collaborative learning encouraged by Swedish universities that can provide valuable employability and critical skills. The students' views demonstrate that they can act as 'both agents of change and beneficiaries' of IaH (Robson, Almeida, and Schartner 2018, 30) when international and intercultural knowledge and competencies are embedded in their studies.

In order to productively integrate internationalisation dimensions into the students' university experiences, our findings suggest that the definition of disciplinary objects and methods need to open-up to IaH in subject-appropriate ways. This would entail a careful examination of what core beliefs about the nature of the discipline are and what needs, gaps and possibilities exist in the pedagogic approaches used in different subject areas. In the context of Swedish universities, where course development and pedagogy are ultimately decided by programme committees, and where individual lecturers have considerable scope for generating pedagogies, a subject-specific approach to developing IaH is a fruitful path for the productive integration of internationalisation into HE studies. But, as our findings illustrate, such an approach can open-up the potential for interdisciplinary experiences across subjects in facilitating students' IaH experiences.

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