Journal of Effective Teaching in Higher Education

The Discipline Future Selves of Higher Education: A Shared Understanding?

Korneel Schepers, *KU Leuven, korneel.schepers@kuleuven.be*

Mieke Clement, *Karel de Grote University of Applied Sciences and Arts*

Veerle Foulon, *KU Leuven*

Guy Van den Mooter, *KU Leuven*

Sofie Craps, *KU Leuven*

Monique van Boom, *KU Leuven*

Greet Langie, *KU Leuven*

Herman Buelens, *KU Leuven*

Abstract: Growing interest in future possible selves in higher education research, vital for identity-based motivation, underlies this mixed-method study. Discipline future selves (DFS), shaped through interactions with significant others, vary among students due to their socially constructed nature. As a result, educators could encounter challenges in delivering relevant course material for the DFS of all students. They also play a key role in further developing students' DFS. A quantitative inquiry assessed the alignment between course material and students' DFS, revealing that most content is indeed perceived by students as relevant for their DFS. Next, a qualitative investigation focused on how educators engaged with DFS, defining the discipline as well as identifying distinctions and communalities between students. Here, there are distinctions between universities and university colleges. The university educators in this study tended to neglect students' DFS, while university colleges discussed communalities but overlooked individualities in DFS. This study emphasizes the importance of understanding and engaging with students' future possible selves in higher education, offering practical implications for educators.

Keywords: Higher Education; Future Possible Selves; Optimal Distinctiveness Theory; Identity.

Citation: Schepers, K.; Clement, M.; Foulon, V.; Van den Mooter, G.; Craps, S.; van Boom, M.; Langie, G.; & Buelens, H. (2026). The discipline future selves of higher education: A shared understanding? *Journal of Effective Teaching in Higher Education, 8* (1)3-24.

It is becoming increasingly clear that higher education institutions (HEI's) should not only focus on the current, but also future identities or future possible selves of their students (Henderson et al., 2019). Future possible selves encompass aspirations, goals, and fears, shaping who individuals desire to become. In higher education (HE), Discipline Future Selves (DFS) reflect enduring beliefs about one's future within their chosen field of study in HE, encompassing knowledge, principles, standards, and skills necessary to realize it (Hyland, 2012).

Identity-Based Motivation (IBM) theory illustrates the importance of these future possible selves, explaining when and where identity can motivate action toward goals (Oyserman et al., 2011). People tend to act in ways consistent with the identity currently active in their working memory and interpret situations accordingly (e.g., "I want to become an engineer, so I need to study mathematics."; Oyserman et al., 2017). Research demonstrates that interventions focused on future possible selves can enhance grades, study time, and attendance (Destin et al., 2022; Oyserman et al., 2006; Oyserman et al., 2015).

A recent study by Burbidge et al. (2024) further expands on IBM, showing that students' certainty in their academic possible identities interacts recursively with how they interpret challenges in schoolwork. Specifically, students who are more certain of achieving their academic goals tend to view difficulty as an important signal, which in turn boosts their belief in their ability to succeed, creating a bidirectional process that enhances motivation and academic outcomes.

To maximize IBM's effectiveness, students should perceive course material as relevant for their DFS. For instance, pharmacy students may have greater IBM for a biochemistry course than for a language course. Therefore, educators should strive to provide relevant content that resonates with their students' DFS. For stereotypical course material, this relevance may be obvious, but in other cases, providing relevant course material may be more complicated.

Review of Literature

Identity as a Social Construct in an Individual Context

Students' choice of discipline is influenced by interactions with their unique significant others (e.g., teacher), resulting in a context-dependent meaning-making of the discipline (Amiot et al., 2007; Smyth et al., 2015; Smyth et al., 2019). Consequently, aligning

course material with students' DFS can be challenging for educators due to the socially constructed nature of these future selves (Marshall et al., 2006; Swann & Bosson, 2008; Vignoles, 2017).

Consider the example of aspiring pharmacists. Some are influenced by their teacher's encouragement based on their precision and eye for detail, while others see it through the lens of having a parent who is a professor in chemistry. Both enroll in the same program but could have very different perspectives about "becoming" a pharmacist. These diverse perspectives can make providing universally relevant course material challenging for educators. However, studies exploring the DFS relevance of educators' course material are lacking to date.

Engaging with the DFS

The development of a DFS does not stop once enrolled. Rather, it is a lifelong process in which HE can play a pivotal role (Cross & Markus, 1991). When students enter higher education, they evolve from having significant others who are generally non-experts in the discipline to interacting with expert significant others, such as educators. This transition allows for further refinement and alignment of an individual's own DFS with what is considered relevant by the discipline community (Marková, 1987).

For example, a student might pursue a career as a kindergarten teacher based on parental advice highlighting their empathic skills. However, it's only through interactions with expert educators that students may come to understand that being a kindergarten teacher also involves understanding educational policy.

These interactions between educators and students are of particular importance. Educators can engage in active discussions about what the discipline does not entail. Creating a shared understanding of the discipline can help students find their place within their community. In this light, research has shown that people have a fundamental need for both belonging and individuality (Hornsey & Jetten, 2004; Tajfel & Turner, 1979; Vignoles et al., 2000). To optimize their membership in the discipline community, students should cultivate a sense of belonging to the community while maintaining a sense of distinctiveness. The Optimal Distinctiveness Theory suggests that individuals try to balance these needs, and groups that allow this balance are more likely to retain their members (Brewer, 1991). Furthermore, having such a balanced identity has been linked to a more positive self-concept (Brewer, 2003).

In conclusion, HEI's have a significant role in shaping and refining students' DFS. Educators can facilitate this process by discussing (a) what the discipline does or does not entail, (b) commonalities among students in the discipline, and (c) areas where students can distinguish themselves. These discussions lead to a better understanding of the discipline and the student's future role, enhancing IBM. Actively engaging with the DFS makes these identities salient, which is crucial for realizing the full potential of IBM (Strauss et al., 2011). Yet again, there is a lack of research examining the presence and specific content of educators' engagement with the DFS of HE students.

The Present Study

This mixed-method study contributes to the literature on future possible selves in HE in two ways. First, it emphasizes the challenges that might arise for educators due to the socially constructed nature of the DFS (Vignoles, 2017). Through interactions with significant others, students develop ideas about the discipline, some of which might not be shared. Therefore, this study quantitatively explores the extent to which students perceive their course material as relevant for their DFS.

Second, it emphasizes that the development of a DFS is a lifelong process in which HE can play a pivotal role (Cross & Markus, 1991; Marková, 1987). Therefore, this study qualitatively explores if and how educators engage with their student's DFS by discussing the discipline's definition(s) and shared and unique features of student's understanding of the discipline (Brewer, 1991).

Quantitative Study

Method

Participants and Procedure

This study received approval from the Ethics Committee of the KU Leuven (G-2023-6210). It involved 202 first-year Dutch-speaking students from a Flemish university (Bachelor in Pharmaceutical Sciences and Bachelor in Engineering Technology) and a Flemish University of Applied Sciences and Art (Educational Bachelor in Early Childhood Education). Participants completed a Qualtrics-administered questionnaire on a voluntary basis, at the end of an on-campus lecture in the second semester. Data was only collected at lectures which were followed by another lecture to reduce the risk of participants rushing through the questionnaire to leave early. To further ensure data quality, we coordinated with the educators to delay the start of the subsequent lecture, providing participants sufficient time to complete the questionnaire and take a short break. Before the data collection, the first author provided all necessary information and answered

questions, ensuring informed consent from participants, which was obtained at the start of the questionnaire. The entire procedure was conducted in Dutch. Table 1 provides all information regarding the participants.

Table 1
Overview of the Participants Information for all Programs

Program	Started Questionnaire	Completed Questionnaire	M_{Age}	SD_{Age}	Gender
Pharmaceutical Sciences	111	92	18.39	0.74	80.5% Female, 2.4% Non-binary
Engineering Technology	45	41	18.63	1.26	19.6% Female
Early Childhood Education	86	69	19.39	1.87	91.3% Female

Measures and Analysis Plan

The students' DFS were primed by introducing the concept and prompting them to write down their personal future image as a technology engineer, preschool teacher, or medicine expert. Next, the DFS relevance of their course content was assessed with the question: "To achieve my future image as a technology engineer/preschool teacher/medicine expert, the following are important:…" A list of all values, norms, skills, and content knowledge items, extracted from the course information in the European Credit Transfer System (ECTS) files of all the courses in the first year's first semester was presented. To prevent participants from rating items based on their overall impression of a course, order of items got randomized across courses. This approach ensured that participants evaluated each item individually and helped mitigate the potential impact of fatigue on responses. Pharmacy students received 63 items from five courses, Engineering Technology students received 113 items from seven courses, and Early Childhood Education students received 112 items from eight courses. Participants rated their agreement using a 5-point Likert scale, ranging from "strongly disagree (1)" to "strongly agree (5)."

For each participant, sum scores were calculated by adding the responses across all Likert scale items. These sum scores were then converted into percentage scores by dividing the sum score by the product of 5 (the maximum possible score per item) and the total number of items in the survey, followed by multiplying by 100. Consequently, for all the

content knowledge, skills, and values and norms items, the mean and standard deviation of the percentage scores were then computed for each program to assess the overall relevance of the course material to students' DFS. Higher percentage scores reflect a higher perceived relevance of the course content. Data were analysed using IBM SPSS (version 28).

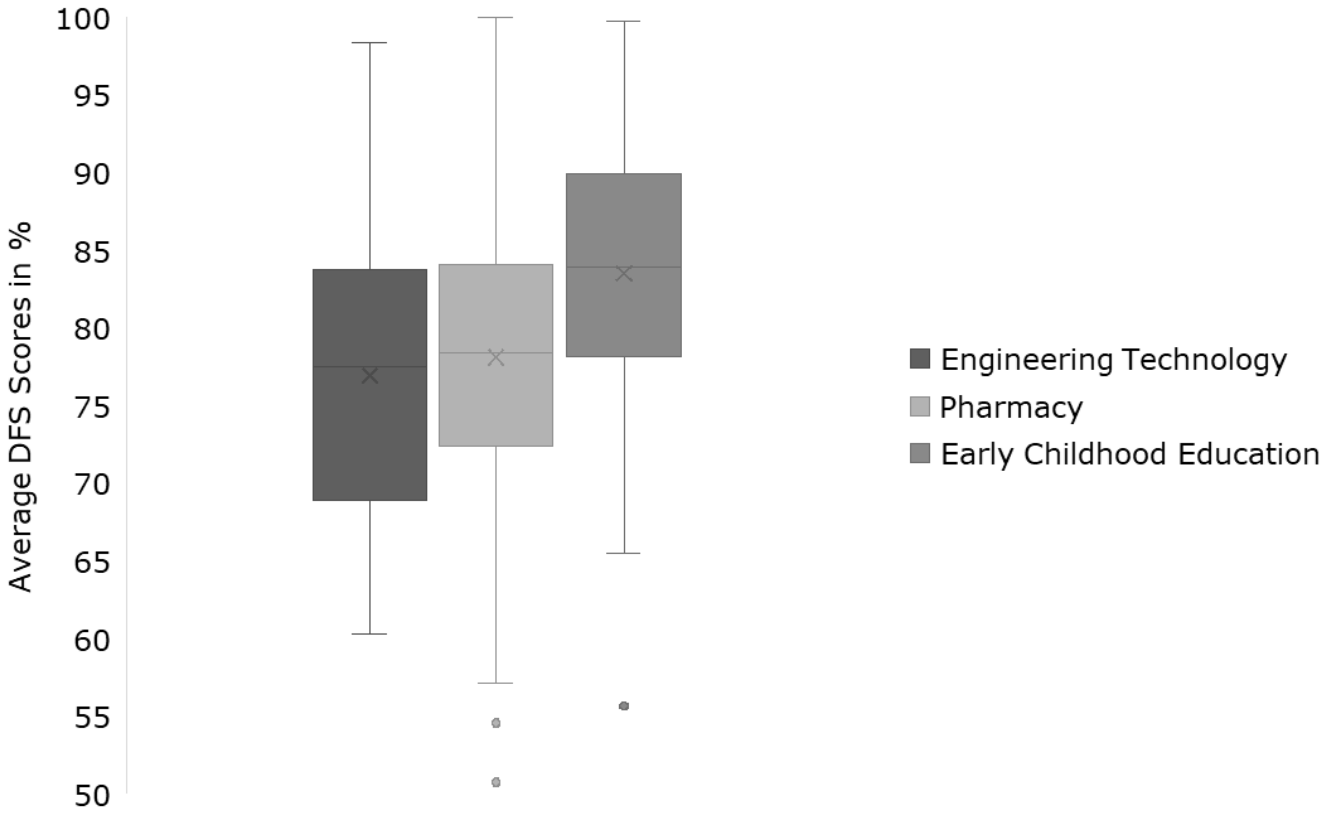

Figure 1

Boxplot of Average DFS Scores by Program

Results

Figure 1 illustrates the boxplots of average DFS scores as percentages across three programs. The plot shows a relatively similar spread of scores across the three programs, although there is noticeably lesser spread in Early Childhood Education, indicating that these students rate their course content as consistently more relevant to their DFS compared to the university students.

Table 2 offers a detailed comparison of how the relevance of DFS varies across content knowledge, skills, and values and norms provided by the courses across the programs.

Notably, content knowledge is rated as less relevant than skills in both university programs, although this distinction is more pronounced in the Engineering Technology program. In contrast, the Early Childhood Education program shows the opposite trend, with content knowledge being considered more relevant than skills. The relevance of values and norms is also included for context, but it will not be further discussed due to the limited number of items these descriptives are based on (Engineering Technology: 4, Pharmacy: 2, Early Childhood Education: 1). This makes it difficult to draw meaningful comparisons with the much larger sets of items related to skills and content knowledge.

Table 2

Means and Standard Deviations of the Percentage Scores of the Content Knowledge, Skills, and Values and Norms for each Program

	Content Knowledge	Skills	Values and Norms	**Total**
Engineering Technology	74.87 (10.26)	82.36 (8.58)	75.59 (13.25)	**76.98 (8.79)**
Pharmacy	75.62 (11.3)	79.97 (9.59)	92.28 (8.40)	**78.15 (9.73)**
Early Childhood Education	85.45 (9.18)	81.03 (9.17)	87.25 (21.69[1])	**83.57 (8.65)**

Discussion

DFS development is influenced by an individual's social network, resulting in a context-specific understanding of their role in a discipline community (Amiot et al., 2007; Smyth et al., 2015; Smyth et al., 2019). When students have diverse visions of their future within a discipline, it challenges educators to deliver relevant course material. This is the first study to examine the extent to which students perceive their course material as relevant for their DFS.

The findings revealed that, on average, the students across programs considered most course material rather relevant to their DFS, with Early Childhood Education having the largest average percentage scores. Moreover, these students rated the course content consistently more relevant, compared to university students who showed more variability in their ratings.

Also, students in Early Childhood Education rated content knowledge as more relevant to their DFS, while students in Engineering Technology and Pharmacy rated skills as more

important. This distinction can be attributed to the nature of the programs, as seen through the lens of the difference between an academic and professional identity (Jensen and Jetten, 2016). Early Childhood Education is a vocational field, where specific content knowledge, such as child development and teaching methods, directly aligns with the students' future careers as educators. On the other hand, Engineering Technology and Pharmacy are more academically oriented, particularly in the early years, and students may view skills, such as technical expertise or clinical practice, as more immediately applicable and essential for their professional development since the content knowledge might be very theoretical or abstract. Moreover, Study 2 will discuss how in the Early Childhood Education program there is way more discussion about the DFS and how the course materials can relate to this, compared to the university programs.

As a limitation, it is important to acknowledge the potential for non-response bias in data collection, as voluntary attendance during lectures may have drawn only the most motivated students, potentially inflating the results.

Despite the overall positive outlook regarding course material relevance, room for improvement exists in all programs. First, consider omitting non-essential course material. If material is crucial but students do not see its relevance, educators should try to clarify relevance. If this is difficult, the placement of course material in the curriculum could be rethought. For instance, in pharmacy, teaching physics later when its link to pharmacological processes (which students only really learn in later years) is clearer could be more effective for IBM.

Qualitative Study

Method

Participants and Procedure

After completing the quantitative study, participants were informed about the subsequent qualitative study. Initially, invitations were emailed to all participants of the quantitative study. However, since none of the students responded to this, students were indirectly recruited by the educational staff, given their direct contact with the students. It is crucial to emphasize that students were always informed about the voluntary nature of their participation decision.

This led to the formation of two focus groups in Engineering Technology (N = 9, & N = 8), one focus group in Pharmacy, and one focus group in Early Childhood

Education. Participants in all three programs were aged between 18 and 21 years. Table 3 provides an overview of the sample sizes and gender distribution across the focus groups.

All focus groups occurred on campus one to two months after the quantitative study. Participants were briefed on the focus group's course and gave informed consent, after which the interviews and recordings commenced. Participants received a 10 EUR voucher as compensation. The semi-structured focus groups were led by the first author and explored (a) the definition of the scientific discipline, (b) heterogeneity in DFS, (c) commonalities in DFS, and (d) how educators engaged with the DFS. The interview protocol is included in Appendix I. All focus groups were conducted in Dutch and ranged from 53 to 82 minutes.

Similar focus groups were conducted by the first and last authors with educators teaching the courses examined in Study 1. The same interview protocol was used with the educators. After educators shared their perspectives, students' opinions were discussed as well, with all focus groups lasting between 94 and 116 minutes. All educators who teach any of the first-semester courses that were evaluated by the students, were invited. All eight educators (four males & four females) from Engineering Technology and all 11 educators (one male & ten females) from early childhood education participated in the focus group. For Pharmacy, three out of five educators (two males & one female) participated.

Table 3

Overview of Sample Sizes and Gender Distributions of Focus Groups with Students

		Program			Total
		Engineering Technology	Pharmacy	Early Childhood Education	
Gender	Female	1	2	4	7
	Male	16	2	0	18
Total		17	4	4	25

Analytic Approach

This study utilized reflexive thematic analysis to explore focus group content (Braun & Clarke, 2022). It followed an inductive research approach, emphasizing data's role in meaning-making while acknowledging the researcher's subjectivity (Braun & Clarke, 2012). Braun and Clarke (2022) stressed the importance of explicit assumptions. Thus, the researchers adopted a constructionist perspective, highlighting the social construction of meaning and experiences (Burr, 1995). The study aimed to gain a deeper understanding beyond descriptive content, employing latent coding (Braun & Clarke, 2013). Initially, the first author transcribed all focus group discussions, ensuring confidentiality. In the results, participants were categorized by programs (Engineering Technology: ET, Pharmacy: P, Early Childhood Education: ECE) and assigned a number, along with gender notation (e.g., [ET1, M] or [P3, F]).

The analysis followed Braun and Clarke's framework (2006) with multiple readings of transcripts to establish familiarity and understanding. Several rounds of coding captured relevant data aspects, which were then organized into initial themes, each defined and linked to pertinent quotes. The first author led the analysis, with extensive discussions and reviews by other authors throughout the process.

Results

The reflexive thematic analysis identified three main themes, which will be discussed in full detail later. The first theme revolves around **defining the scientific discipline**, highlighting a notable contrast between university and university college programs. University college students exhibited better articulation of their discipline.

The second theme explores the potential reasons behind challenges in defining the scientific discipline, investigating students' **shared understanding** regarding the discipline's nature. University college students again displayed a stronger shared understanding. The third theme focuses on **the role of HEI's** in engaging with students' DFS. Notably, university programs seldomly engage with the DFS of their students. Instead, they mainly focus on introductory courses in the first semester to establish a shared 'basic' knowledge base. In contrast, university colleges did engage with students' DFS, primarily emphasizing commonalities. However, they did neglect the individuality of their students, hindering a balanced identity development. This discussion of this theme also included insights from educators. For the other themes, this was left out since there was great alignment with the student perspectives, thus providing limited additional information.

Theme 1: Defining the Scientific Discipline

All focus groups started with the question of defining the discipline. Engineering Technology students presented a rather vague definition: "[An engineer technology professional is] someone who looks for solutions to a problem [ET1, M]." After repeating the question in several ways, another participant came up with the equally general: "[An engineer technology professional is there] To optimize the industrial processes [ET2, M]." The researcher suggested these descriptions might apply to any engineer, yet no better answer arose. When questioned about the program's definition of the discipline, a student responded: "I cannot remember a professor giving an accurate definition or talking about what engineering technology actually is [ET3, M]."

The focus group in Pharmacy started the other way around, with students providing precise definitions: "[A Medicine expert is] someone who truly understands medicines and knows how to sell them [P1, F]." When the researcher indicated that not all medicine experts work in a drug store, other students argued: "A medicine expert is someone familiar with the human body [P2, M]"; "[A medicine expert is] someone who understands how molecules interact with the human body and can explain this to clients [P3, F]." Once more, these inclusive descriptions cover various fields, like doctors. Yet, the students couldn't offer better clarification.

For the Early Childhood Education focus group, the process of defining went way smoother. The first student directly stated: "A kindergarten teacher is first and foremost a toddler's friend. It is someone who playfully guides the toddlers through a project that prepares them for primary school [ECE1, F]." Consequently, students made additions to the initial definition, so they rapidly arrived at a definition that exclusively applied to kindergarten teachers.

The educators were confronted with the answers of their students and fully recognized the (in)ability to define the discipline.

Theme 2: A Shared Understanding

While discussing the difficulties of defining the scientific discipline, some students argued: "I feel that it is impossible to clearly define engineering technology since there are so many [vocational] categories [ET4, M]"; "I think that our common points are very limited in a first year [P1, F]." So, these focus groups highlighted a heterogeneity in the university students' DFS since every student had their own understanding about what the

discipline entails and what they want to achieve in the future. The differences made it difficult to come to a somewhat unified definition.

The focus groups regularly strayed into discussions about which subjects are essential to the discipline. Again, there was a clear distinction between the university and the university college programs. During these discussions with university students, statements like the following were common: "To me, learning about entrepreneurship is very useful because I want to start my own company later [ET5, M]." Even if the researcher explicitly asked for it, these students could not transcend their own perspective due to the lack of a shared understanding.

In contrast, students from the Early Childhood Education program could easily take the perspective of the kindergarten teacher. During these discussions with the students, statements like the following were common: "We [kindergarten teachers] should have a basic knowledge of developmental psychological theories [ECE1, F]." The ability to provide a clear definition and take the perspective of the kindergarten teacher indicates a shared understanding between these students.

The educators were confronted with the answers of their students and fully recognized the (lack of a) shared understanding.

Theme 3: The Role of HEI's

The focus groups also explored how the programs engage with the DFS of students. With the university students, most questions regarding the program's involvement were met with silence, indicating that the programs take minimal action. Someone stated: "Yeah, eumh this is just not discussed [ET3, M]."

After repeated questioning, some students argued: "Yes, now it is just getting the basics without getting anything extra really [ET1, M]"; "Now it's very general, next year [after choosing majors] it will be way more specific, and then we will have more in common [with other students from the same graduate program] [P1, F]." A pharmacy educator defended their curriculum design by stating that "you need to understand the alphabet before you can read." Also, an engineering technology educator admitted that the field is so broad that it is challenging to look for commonalities or "design courses that are equally relevant for all students." So, university educators realize there is a lack of shared understanding about the discipline. Still, instead of discussing the issue, programs look for

the greatest common denominators (e.g., mathematics for Engineering Technology and chemistry for Pharmacy) and focus on this during the first year.

The university students' opinion on focusing on these general courses and their effect on their DFS is divided. Some students argue that this provides time for students to explore and better understand the discipline: "Now you are still a bit uncertain about what you want, and this way, you get to know all sides of Pharmacy [P4, M]"; "It is nice that it [the first-year] is so broad because it means you can make a more informed choice [ET6, M]." In contrast, some students think this increases the understanding of the discipline: "Yes, so provide the basics without anything else… The problem is that it remains unclear [what the discipline entails], so you cannot know if you like it or not [P1, F]"; "Not really knowing what you are doing can make you lose heart [ET2, M]. "

Given a lack of shared understanding between the students, engaging with the students' individual aspects of the DFS might be fruitful. However, some students indicated: "We never talk about our [individual] plans [ET3, M]"; "This is never discussed in public. If you really want to talk about this you could ask the educator questions after class, and most of them would be willing to help… but we need to take the initiative [ET5, M]. "

In contrast, the educators in the Early Childhood Education program have an easier time engaging with the DFS of their students. Some indicated: "We get asked to reflect on our future [identity] all the time… Even a bit too much, in my opinion (laughs) [ECE1, F]"; "There is a considerable focus on our trajectory of becoming a kindergarten teacher… Teachers constantly discuss our [future] plans with us [ECE3, F]." Finally, a student also stated: "Yes, I would say that this [engaging with the DFS] motivates us, to see and talk about where we are going is an excellent way to stay on track [ECE3, F]."

There was no real discussion about the distinction between individuality and commonality with the students; however, one of the educators indicated*:* "Now that I think about it, we [educators] might sometimes forget to focus on what makes our students unique." Another educator argued that we could better highlight our students' individuality, "since now we mainly focus on what they all share since this is easiest"*.* So, it seems that the early childhood education program does engage more with the DFS of their students. However, there is still a lack of focus on the students' individuality.

Discussion

This qualitative study highlights that HEI can play a pivotal role in developing a DFS (Cross & Markus, 1991; Marková, 1987). More specifically, educators can take up their role as significant others to try and engage with their students' DFS (Vignoles, 2017). Semi-structured focus groups with both students and their educators explored if and how educators engage with their students' DFS by discussing the definition of the discipline, commonalities among students, and ways to distinguish themselves (Brewer, 1991). A reflexive thematic analysis revealed three key themes.

First, university students struggled to define their scientific discipline, while Early Childhood Education students did not. This disparity is likely due to a lack of shared understanding about what the discipline entails for university students. Furthermore, university students noted that their educators never addressed these topics, a point with which the educators themselves concurred. These points relate to the distinction between academic and professional identities (Jensen & Jetten, 2016), as discussed in study 1. University students enrol into the same program with possibly very different ideas about their future selves, while this is less so in university colleges, making it more challenging for the university educators to define and discuss these topics.

Next, university educators insufficiently engage with their students' DFS during the first year of the bachelor's program. They argue that this is difficult due to a lack of shared understanding. Moreover, these university programs try to provide very general courses in the first year. While educators defend this approach, students debate its effectiveness. Some see it as promoting exploration and informed decision-making, while others argue that this should not be a replacement for actual discussions about the (heterogeneity) in DFS, which could increase motivation. So, the issue is not that the definitions of academic disciplines are less clearcut, but rather that there is no discussion about it.

Given IBM-theory, the efficacy of starting out with general courses warrants consideration. Providing more stereotypical (thus relevant) content initially might foster motivation. Later, it could be simpler to demonstrate the relevance of the fundamental materials underlying these stereotypical materials (e.g., the physics behind pharmacological processes). This contrasts with the idea of one educator that children learn the alphabet before reading words.

This issue is less prevalent in Early Childhood Education, where the (communalities in the) DFS are often discussed, leading students to spontaneously indicate that this increases

motivation. Nevertheless, educators in this field also fall short in addressing student individuality.

Brewer (1991) suggests that an optimal identity balances individual and shared elements. University educators neglect both and claim this is challenging due to a lack of commonalities among first-year students. Nonetheless, Study 1 revealed shared values/norms/skills/content knowledge relevant to most student's DFS. For example, pharmacy students may differ in DFS, but they agree on the relevance of understanding chemical equations. Thus, despite limited shared understanding, opportunities do exist to connect through commonalities, and the individualities can always be discussed.
Study limitations include the pressure of on-the-spot responses from students in an unfamiliar group setting. Future research might benefit from anonymous, open-ended written responses. The small sample size may have self-selection bias, but this likely had minimal impact given that less motivation is unlikely to lead to, for example, a better understanding of the discipline.

General Discussion

This mixed-method study contributes to the literature on future possible selves in HE in several ways. Firstly, it highlights the challenges educators may face due to the socially constructed nature of the DFS (Vignoles, 2017). Students develop ideas about their discipline through interactions with significant others, which may not always align. Therefore, this study quantitatively explores the extent to which students perceive course material as relevant for their DFS. Next, it emphasizes that developing a DFS is a lifelong process, where HE plays a pivotal role (Cross & Markus, 1991; Marková, 1987). Specifically, it qualitatively examines how educators engage with their students' DFS by discussing the definition of the discipline, commonalities among students, and ways to distinguish themselves (Brewer, 1991).

Our findings reveal that while students of all programs generally perceive course material as relevant, Early Childhood Education stands out as more closely aligned with students' DFS. Moreover, university students see skills as more relevant to their DFS, while Early Childhood Education students find content knowledge to be more relevant. These distinctions might be attributable to differences in academic and professional identities, as described by Jensen & Jetten (2016). University college students often share similar career goals, leading to less DFS variation. Conversely, university students exhibit greater diversity in future plans and perceptions of their discipline, creating challenges for educators.

Our qualitative investigation demonstrates the potential role of HEI's in shaping students' DFS. Educators can act as significant others by engaging in discussions about students' DFS (Vignoles, 2017). Thus, we examined how educators interacted with students regarding their discipline's definition, identifying commonalities, and distinguishing themselves from peers through semi-structured focus groups with students and educators, yielding three main themes through reflexive thematic analysis.

It was found that first-year university students struggled to define the palette of their scientific discipline. Saunders et al. (2022) confirmed this in their international study among first-year engineering students in three different countries. This contrasts with Early Childhood Education students who could do so readily. This discrepancy could be attributed to the heterogeneous nature of DFS among university students.

Moreover, it would be valuable to replicate this study with master's students instead of first-year students. In the later years, the groups get smaller and the heterogeneity in the DFS should decrease due to specialization. Theoretically, this should facilitate a shared understanding and therefore more engagement with students' DFS. This would allow for examining whether professors actually do engage with the DFS in such settings. Additionally, the individual aspects of university students' DFS are rarely discussed publicly, whereas Early Childhood Education programs engage extensively with students' DFS, leading to increased motivation. However, educators in the latter field also acknowledge the need for better focus on individuality.

It is crucial to note that the heterogeneity in university students' DFS cannot justify a lack of engagement with DFS. Optimal distinctiveness theory suggests that individuality is essential and can be discussed, even when shared understanding is lacking. Commonalities can be addressed more efficiently in later stages when students are divided into smaller groups based on their future goals. Furthermore, the quantitative study reveals some commonalities between students that could be worth discussing in the context of their DFS.

Failure to address this heterogeneity and engage with university students' DFS results in missed opportunities for identity-based motivation. In contrast, engagement with DFS in Early Childhood Education enhances motivation, although room for improvement in addressing individuality exists to achieve optimal distinctiveness (Brewer, 1991). Moreover, creating a stronger and clearer DFS leads students to adopt a difficulty-as-importance mindset, instead of a difficulty-as-impossibility one (Burbidge et al., 2024).

Strengths, Limitations, and Future Research

While previous research focused on the strength of DFS (Smyth et al., 2015), this study revealed that content may not always be shared and demonstrated how this affects program engagement with students' DFS. Including three programs enhances the findings' applicability in a HE context like the Belgian system and involving educators in Study 2 adds objectivity.

However, a limitation is the study's focus on the Belgian HE system, with its loose entry requirements leading to large students' groups. Future research could explore different contexts, such as private Anglo-Saxon universities, offering more opportunities for student engagement and DFS exploration. Moreover, it would be valuable to replicate this study with master's students instead of first-year students, as smaller groups theoretically may facilitate a shared understanding and therefore more engagement with students' DFS. This would allow for examining whether educators actually do engage with the DFS in such settings.

The study did not investigate outcome variables, despite students mentioning motivation. Future research could employ experimental designs to compare groups with DFS interaction to those without, measuring important outcomes like grades, continuation, and enjoyment. Such designs could also assess the effectiveness of emphasizing shared versus individual aspects of DFS in relation to IBM theory (Oyserman et al., 2007) and optimal distinctiveness theory (Brewer, 1991).

Implications

To better engage with the DFS of students, educators should incorporate discipline-specific discussions early in the curriculum, trying to create a shared understanding of the discipline. Not only discussions, but also reflective exercises that prompt students to articulate their vision of the future and its connection to their coursework can deepen their sense of relevance and motivation (Oyserman et al., 2006). Small group discussions where students explore both shared values and individual goals within their discipline can further enhance their connection to the field and their personal aspirations (Hornsey & Jetten, 2004). Additionally, providing clear links between course material and career paths, alongside offering workshops or mentoring sessions to discuss DFS with faculty or alumni, ensures that students feel supported and motivated in their academic and professional journey.

These strategies emphasize that educators need to actively engage with students' DFS to enhance IBM. By focusing on both shared and individual aspects of students' future identities, HEIs can foster a more meaningful and motivating learning environment (Destin et al., 2022; Hornsey & Jetten, 2004). This approach not only supports students' academic success but also helps them better understand their role within the discipline community, contributing to a balanced and positive self-concept, as proposed by ODT (Brewer, 1991).

Conclusion

Some HE programs enroll students with diverse DFS, which can present challenges for educators. However, this study demonstrates that even in the absence of shared understanding, individual aspects of DFS can be addressed. Active discussions and reflection on DFS can lead to increased identity-based motivation, making this a worthwhile area for further exploration.

References

Amiot, C. E., de la Sablonnière, R., Terry, D. J., & Smith, J. R. (2007). Integration of social identities in the self: Toward a cognitive-developmental model. *Personality and Social Psychology Review*, *11*(4), 364–388. https://doi.org/10.1177/1088868307304091

Braun, V., & Clarke, V. (2012). Thematic analysis. In H. Cooper, P. M. Camic, D. L. Long, A. T. Panter, D. Rindskopf, & K. J. Sher (Eds.), *APA handbook of research methods in psychology, Vol. 2. Research designs: Quantitative, qualitative, neuropsychological, and biological* (pp. 57–71). American Psychological Association. https://doi.org/10.1037/13620-004

Braun, V., & Clarke, V. (2022). Thematic analysis: A practical guide. Sage Publications Ltd.

Braun, V., & Clarke, V. (2013). Successful qualitative research: A practical guide for beginners. Sage Publications Ltd.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Brewer, M. B. (1991). The social self: On being the same and different at the same time*. Personality & Social Psychology Bulletin, 17*(5), 475–482. https://doi.org/10.1177/0146167291175001

Brewer, M. B. (2003). Optimal distinctiveness, social identity, and the self. In M. R. Leary & J. P. Tangney (Eds.), *Handbook of Self and Identity* (pp. 480–491). Guilford Press.

Burbidge, A., Zhu, S., Cheung, S. H., & Oyserman, D. (2024). Believing that difficulty signals importance improves school outcomes by bolstering academic possible identities, a recursive analysis*. PloS one, 19*(10). https://doi.org/10.1371/journal.pone.0308376

Burr, V. (1995). *An introduction to social constructionism.* Taylor & Frances/Routledge. https://doi.org/10.4324/9780203299968

Cross, S., & Markus, H. (1991). Possible selves across the life span. *Human Development*, *34*(4), 230–255. *https://doi.org/10.1159/000277058*

Destin, M., Silverman, D. M., & Braslow, M. D. (2022). Future identity as a support for college motivation and success. *Frontiers in Education*, *7*, 901897. https://doi.org/10.3389/feduc.2022.901897

Henderson, H., Stevenson, J., & Bathmaker, A. (2019). *Possible selves and higher education: New interdisciplinary insights*. H. Henderson, J. Stevenson, & A. Bathmaker (Eds.). Routledge.

Hyland, K. (2012). Disciplinary Identities: Individuality and Community in Academic Discourse (1st ed.). Cambridge University Press. https://doi.org/10.1017/9781009406512

Hornsey, M. J., & Jetten, J. (2004). The individual within the group: Balancing the need to belong with the need to be different. *Personality and Social Psychology Review*, *8*(3), 248–264. https://doi.org/10.1207/s15327957pspr0803_2

Jensen, D. H., & Jetten, J. (2016). The importance of developing students' academic and professional identities in higher education. *Journal of College Student Development*, *57*(8), 1027–1042. https://doi.org/10.1353/csd.2016.0097

Marková, I. (1987). Knowledge of the self through interaction. In K. Yardley, & T. Honess (Eds.), *Self and identity: Psychosocial perspectives* (pp. 65-80). New York: Wiley.

Marshall, S. K., Young, R. A., & Domene, J. F. (2006). Possible selves as joint projects. In C. Dunkel & J. Kerpelman (Eds.), *Possible selves: Theory, research and applications* (pp. 141-161). Hauppauge, NY: Nova.

Markus, H., & Nurius, P. (1986). Possible selves. *American Psychologist*, *41*(9), 954–969. https://doi.org/10.1037/0003-066X.41.9.954

Oyserman, D., Bybee, D., & Terry, K. (2006). Possible selves and academic outcomes: How and when possible selves impel action. *Journal of Personality and Social Psychology*, *91*(1), 188–204. https://doi.org/10.1037/0022-3514.91.1.188

Oyserman, D., Destin, M., & Novin, S. (2015). The context-sensitive future self: Possible selves motivate in context, not otherwise. *Self and Identity*, *14*(2), 173–188. https://doi.org/10.1080/15298868.2014.965733

Oyserman, D., Johnson, E., & James, L. (2011). Seeing the destination but not the path: Effects of socioeconomic disadvantage on school-focused possible self content and linked behavioral strategies. *Self and Identity*, *10*(4), 474–492. https://doi.org/10.1080/15298868.2010.487651

Oyserman, D., Lewis, N. A., Yan, V. X., Fisher, O., O'Donnell, S. C., & Horowitz, E. (2017). An Identity-Based Motivation Framework for Self-Regulation. *Psychological Inquiry*, *28*(2–3), 139–147. https://doi.org/10.1080/1047840X.2017.1337406

Saunders-Smits G., Craps, S., Carthy, D., & Langie, G. (2021). Comparison of first-year student conceptions of their future roles as engineers between Belgium, Ireland, and The Netherlands. *Internation Journal of Mechanical Engineering Education, 50*(3), 648-666. https://doi.org/10.1177/03064190211027135

Smyth, L., Mavor, K. I., & Gray, L. R. (2019). Not just who you are, but who you were before: Social identification, identity incompatibility, and performance-undermining learning behaviour in higher education. *Journal of Community & Applied Social Psychology*, *29*(6), 474–491. https://doi.org/10.1002/casp.2413

Smyth, L., Mavor, K. I., Platow, M. J., Grace, D. M., & Reynolds, K. J. (2015). Discipline social identification, study norms and learning approach in university students. *Educational Psychology*, *35*(1), 53–72. https://doi.org/10.1080/01443410.2013.822962

Strauss, K., Griffin, M. A., & Parker, S. K. (2011). Future work selves: How salient hoped-for identities motivate proactive career behaviors. *Journal of Applied Psychology*, *97*(3), 580–598. https://doi.org/10.1037/a0026423

Swann, W. B., Jr., & Bosson, J. K. (2008). Identity negotiation: A theory of self and social interaction. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), *Handbook of personality: Theory and research* (3rd ed., pp. 448-471). New York, NY: Guilford Press.

Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. In W. G. Austin, & S. Worchel (Eds.), *The social psychology of intergroup relations* (pp. 33-37). Monterey, CA: Brooks/Cole

Vignoles, V. L. (2017). Identity: Personal AND Social. In K. Deaux & M. Snyder (Eds.), *The Oxford Handbook of Personality and Social Psychology* (pp. 288–316). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780190224837.013.12

Vignoles, V. L., Chryssochoou, X., & Breakwell, G. M. (2000). The distinctiveness principle: Identity, meaning, and the bounds of cultural relativity. *Personality and Social Psychology Review*, *4*(4), 337–354. https://doi.org/10.1207/S15327957PSPR0404_4

Appendix I: Interview Protocol

1) What do you think a medicine expert is?
   a) Is this something you discuss as students?
   b) Is this something that is discussed with the program?
2) You have all chosen the same program. So you would think that you have things in common.
   a) Do you agree?
      i) If so, what then?
   b) How do you students deal with this?
   c) How does the program deal with this?
   d) Does the program focus on what you have in common?
      i) If so, how?
      ii) What are the consequences of this?
   e) Does the program ignore what you have in common?
   f) What are the consequences of this?
3) At the same time, you would think that you all have a personal, unique vision of the future as a medicine expert.
   a) Do you agree?
   b) How do you students deal with this?
   c) How does the program deal with this?
   d) Does the program focus on your individualities?
      i) If so, how?
      ii) What are the consequences of this?
   e) Does the program ignore your individualities?
      i) What are the consequences of this?