Student Perceived Agency in Higher Education

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Abstract

Student agency is a key component of active learning and an important resource for coping with uncertainty, supporting both academic success and well-being. However, agency has rarely been examined as a multidimensional construct or through repeated measures. This study investigated higher education students' perceptions of their agency, and its associations with gender, age, field of study and completed study credits and explored the stability and change of agency during a single course. A total of 309 undergraduates completed an agency questionnaire, with 16 responding at three time points, and five participating in interviews. Using the Agency of University Student (AUS) Scale, students reported high relational agency, while participatory agency varied. Analysis revealed differences by gender and field of study, and significant individual-level changes during a single course. Interviews indicated that students identified various resources supporting or constraining their agency and primarily linked changes in agency to perceived support and a sense of capability, although interpretations were highly individual and situational. Understanding this variability in student agency can inform educational practices and contribute to implications supporting learning and well-being.

Practitioner Notes

1. The study encourages to develop practices that maintain and strengthen different dimensions of student agency, which is generally at a good level, though variation exists.
2. Sustaining strong relational support and addressing gaps in participatory opportunities can help ensure equity among students.
3. Future interventions should consider gender and disciplinary differences to promote balanced agency development for all students.
4. Monitor agency throughout courses and adapt teaching strategies to support individual trajectories, as agency can vary significantly within a single course.
5. Provide consistent feedback and dialogue to enhance students' confidence and perceived support.

Keywords

Student agency, higher education, Agency of University Students (AUS) Scale, repeated measures

Introduction

Student agency lies at the core of learning and development (Stenalt & Lassesen, 2022). It reflects the capacity to direct one's learning activities, influence study processes and navigate academic pathways (Torres Castro & Pineda-Báez, 2023; Vaughn et al., 2020). Agency not only supports progress in higher education (HE) (Jääskelä et al., 2020; Lynam et al., 2022) but can also enhance academic performance (Lindgren & McDaniel, 2012; Lynam et al., 2022). Beyond academic outcomes, agency is considered essential for lifelong learning and coping with uncertainty and change (Su, 2011). By promoting well-being (Eteläpelto et al., 2013), agency becomes critical resource in a changing world. However, agency is shaped by various resources, that can either support or constrain it. Additionally, many of these resources for agency are subjective and dynamic. Understanding this diversity is vital for identifying sources of variability and providing targeted support, as strengthening student agency enhances the opportunities for meaningful learning and achievement of individual goals (Arnold & Clarke, 2014).

Divergent ways of defining agency exist according to the field of research (Torres Castro & Pineda-Báez, 2023), and only a few studies conceptualised and assessed agency as a multidimensional construct that incorporates learner perceptions (e.g., Jiang et al., 2023; Jääskelä et al., 2017). Previous quantitative studies using multidimensional measure for agency have generally reported student agency to be relatively high in the HE context, though with considerable individual variation (Jääskelä et al., 2017, 2020, 2023). Earlier evidence shows that students' perceptions of their agency may vary according to background characteristics, such as age, gender and stage of studies (e.g. Jääskelä et al., 2017). Additionally, agency can change over time (Patall et al., 2022). Yet, this variability and situational dynamics of agency remain insufficiently understood. Earlier research has typically relied on qualitative approaches with small, cross-sectional samples (Vaughn et al., 2020). Large-scale studies exploring student agency multidimensionally could uncover systematic differences between subgroups and highlight inequalities manifested by differences in background characteristics.

Accordingly, the first aim of this study is to examine student's perceptions of agency in HE and examine differences related to background characteristics. In addition, research on individual temporal dynamics of agency studied with repeated data remains limited. Therefore, the second aim is to explore the stability and change of agency during one course and to capture students' own unique explanations of aspects supporting and constraining their agency.

Multidimensional Student Agency in Higher Education

Agency is inherently a multidimensional concept (e.g., Matusov et al., 2016). It has been related to individual growth and success in studies, such as self-development, and academic performance (Arnold & Clarke 2014; Bandura, 2001). Especially in the HE context, student agency is also a self-reflective phenomenon (Jääskelä et al., 2020; Klemenčič, 2015). It is socially co-constructed, for example in active participation in knowledge building (Damşa et al., 2010; Lipponen & Kumpulainen, 2011; Stenalt, 2021). Participation in the classroom, asking questions and expressing preferences can be seen as an agentic contribution - intentional action initiated by students themselves (Klemenčič, 2015; Reeve, 2013). Therefore, agency can be described as a quality of intentional action and interaction (Biesta et al., 2015; Biesta & Tedder, 2008) with an emphasis on active participation. It is a dynamic, subjective, and

situational experience (Torres Castro & Pineda-Báez, 2023) that may vary depending on background characteristics, context, circumstances, and time.

In the present study, the conceptualisation of student agency is based on a synthesis from earlier literature, with an emphasis on subjectively experienced resources for agency. Here, agency is defined as a '*student's experience of having access to and being empowered to act through personal, relational, and participatory resources, which allow him/her to engage in purposeful, intentional, and meaningful action and learning in study contexts*' (Jääskelä et al., 2020, p. 2). This definition encompasses the idea of learning in interaction and is regulated by contextual aspects and power relations (Eteläpelto et al, 2013; Su, 2011). Therefore, HE students with high agency have the capacity to take an active role in coordinating their studies and shaping their learning environment to reach their personal goals towards purposeful learning (Arnold & Clarke, 2014).

In this study, the resources for student agency were divided on theoretical basis into three domains: personal, relational, and participatory resources (Jääskelä et al., 2020). First, the domain of personal resources for agency includes two dimensions: self-efficacy and competence beliefs. Competence beliefs refer to perceived cognitive skills, strategies, and adequate knowledge, including beliefs of being able to understand and learn (Schunk & Zimmerman, 2006). Self-efficacy encompasses judgements of learning and the ability to perform in a situation, shaping decisions about what to pursue, and influencing persistence and effort in the classroom (Bandura, 1982). Self-efficacy beliefs lie at the heart of human agency, as they represent perceived capabilities or mastery within a given context and function as mediators between competencies and actions (Bandura, 1982, 1997, 2001).

The second domain, relational aspects, play a vital role in constructing agentic experiences in HE (Klemenčič, 2015) and are linked to success in studies (Mishra, 2020; Schneider & Preckel, 2017). The domain of relational resources for agency includes three dimensions: trust for teachers, teacher support and equal treatment. These dimensions are related to trustful reciprocity (Lipponen & Kumpulainen, 2011) between students and teachers, and among peers, creating a safe environment for learning. The domain of relational resources includes concrete support from and trust in the teacher (Harris et al., 2018; Jääskelä et al., 2023). Equitable distributed power and the capacity to act within dialogic spaces are associated with a sense of justice and equality among students. These aspects have also been linked to positive interpersonal relationships and can serve as resources that foster agency (Eteläpelto & Lahti, 2008; Lipponen & Kumpulainen, 2011).

Finally, the third domain - participatory resources for agency - encompasses themes that focus on the individuals' opportunities to actively participate and engage (e.g., Leijen et al., 2020), as well as their actual participatory behaviour. Accordingly, this domain comprises dimensions of peer support, interest and utility value, opportunities to influence and make choices, ease of participation and the participation activity. Participation in social interaction and decision-making in the classroom involves proactive social influence in collective and dialogic processes (Lipponen & Kumpulainen, 2011; Stenalt, 2021). Therefore, active participation is grounded in relational safety, but it also depends on identifying viable opportunities for participation, supported by the ability to take part in dialogic processes and to draw on peers as resources (Edwards, 2005). Overall, peer relations are a significant aspect affecting student agency from the beginning of studies (Soini et al., 2015). Also, distinguishing the utility value and having an

interest in the content both supports engaged participation and learning (Edwards, 2005; Jääskelä et al., 2020).

Individual Temporal Dynamics of Agency

Agency is not a fixed state; rather, it is situational and dynamic, continuously (re)constructed through interactions between individuals and their sociocultural context (e.g., Nunes et al., 2023). Consequently, agency can transform and evolve over time, even within the same context. For instance, during a single course, different configuration of agentic resources may be required or supported at various settings. As a result, individual experiences of agency can fluctuate substantially due to shifting circumstances and the varying availability of personal resources.

Overall, the temporal dynamics of agency are shaped by both individual factors (e.g., unique personal objectives; Biesta et al., 2015) and circular influences (e.g., reciprocal effects within interaction, affected by social and participatory structures; Mameli et al., 2022). At any given moment, a variety of reciprocal interactions coexist within a classroom (Mameli et al., 2021; Matos et al., 2018; Nurmi & Kiuru, 2015) and their effects may be further mediated for example by perceptions of classroom management, emotional support, and cognitive activation (Lazarides et al., 2023), creating complex, intertwined influences over time. These individual and circular influences can shape individual students' perceptions of agency in unique ways. Moreover, longitudinal research has demonstrated that the dimensions of agency are interrelated and may mutually influence one another across time (Mameli et al., 2022; Patall et al., 2022).

Consequently, agency dimensions may exhibit diverse temporal patterns of change. However, knowledge of these temporal dynamics of agency at the individual level, examined through repeated measures, remains limited. Furthermore, the individual explanations for aspects contributing to agency are largely unexplored (except e.g. Juutilainen et al., 2014).

## Overview of Studies and the Aims

The aim of this study is to examine multidimensional experiences higher education (HE) student agency in first-year courses and to explore individual temporal variations in agency. The study consists of two sub studies**: Study 1** and **Study 2** (Figure 1).

Study 1 first aimed to investigate how students perceive their agency in first year HE courses with respect to personal, relational, and participatory resources. Personal and relational domains were evaluated with two dimensions each: the personal domain included competence beliefs and self-efficacy, and the relational domain included trust for teachers and teacher support. The participatory domain consisted of four dimensions: participation activity, ease of participation, opportunities to influence, and interest and utility value. A second aim was to examine how agency was related to background characteristics (gender, age, study credits and field of study).

Study 2 explored individual-level temporal stability and changes in students' agency during a first-year course, recognizing that agency is situational and based on subjective perceptions. In addition, it examined students' explanations for resources contributing to their agency.

Figure 1

Study 1 and Study 2
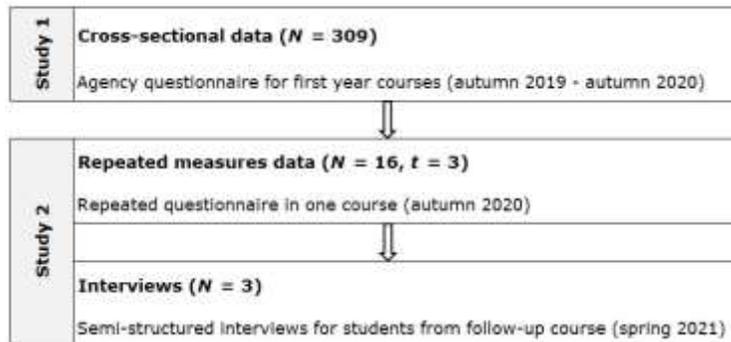
Research questions

1. How do students perceive their agency in their first-year HE courses?
2. How is student agency associated with background characteristics (gender, age, study credits and field of study)?
3. What kinds of individual-level temporal stability and changes occur in students' agency during a first-year course?
4. What aspects in the course context support or constrain students' perceived agency?

Study 1: Level and Associations of Student Agency

Methods

Participants, Data Collection and Study Design

Data were collected from basic mathematics courses designed for first-year students at a career-oriented higher education (HE) institution, the University of Applied Sciences (UAS) in Finland, between August 2019 and December 2020. In Finland, HE comprises both universities and UAS, the first being more research oriented. Students at UAS may hold an upper secondary school qualification, or many have completed vocational qualifications. It is also common for students to enter UAS after several years in the workforce, which contributes to a wide age range among UAS students.

The courses included in the data collection shared similar content and learning objectives, although the implementation varied slightly. Data were gathered with online questionnaires administered at the end of the course, and all students present were invited to participate. Of those enrolled, 64% participated and complete the survey. Post hoc power analysis indicated that observed sample size (N = 309) was sufficient to detect meaningful differences. All responses were anonymous.

The participants in Study 1 were, on average, 24 ± 6 years old, 89% were under 30 years old, and 26% were women. Students studied for bachelor's degrees in the fields of business management (29%) or technology (71%) in different study programmes. The majority (81%) started their studies in 2019. Students had on average, 23 ± 53 self-reported study credits (ects) completed. A total of 63% of the participants had not yet completed study credits, whereas nine students (approximately 3%) had already completed at least 200 credits.

Measures

Agency

Agency was measured using the validated Agency of University Students scale (AUS, Jääskelä et al., 2020), to capture multiple dimensions of agency. The scale is used to measure a student's agency experiences within a course context. Students evaluated their agency on a questionnaire on a 5-point Likert scale (*1 strongly disagree – 5 strongly agree*). The final eight-factor model (for details, see the Supplementary data and the Appendix A) included following factors from personal resource domain: competence beliefs (5 items) and self-efficacy (5 items), from relational domain: trust for teachers (5 items), and teacher support (3 items), and from participatory domain: participation activity (3 items), ease of participation (4 items), opportunities to influence (4 items), and interest and utility value (3 items). These eight factors are referred to as the dimensions of agency.

Background Characteristics

Continuous age and self-reported completed study credits (ects) were strongly skewed to the right and were dichotomised. Thus, age was classified with the median as the cut-off point (18–21/at least 22 years old), and study credits were redefined as no ects/one or more ects. Additionally, the field of study was dichotomised by the bachelor's degree programme studied (business management/technology). Gender was a dichotomous variable (man/woman). There were a few missing values in other background characteristics, but in the study credits, 43 values (14%) were missing.

Statistical Analyses

The confirmatory factor models (CFA) were performed in Mplus Version 8.11 (Muthén & Muthén 1998–2017) to fit the model for agency. Reliabilities for factors using McDonald's Omega ranged between 0.56 and 0.90 (Appendix A). To examine whether agency was associated with background variables, analyses of variances (ANOVA) were conducted. In the final interaction models, all main effects and only significant two-way interactions were estimated. If a two-way interaction was significant, differences between groups were reported using Bonferroni-corrected *p* values. Additionally, the main effect model was estimated. Partial eta squared (η_p^2) was utilised as an effect size estimate (.01 = small effect, .06 = medium effect, .14 = large effect). The analyses were conducted using R (version 4.5.1) and IBM SPSS Statistics (version 28.0.1.1).

Results of Study 1

Levels of Dimensions of Student Agency

Overall, the levels of the agency dimensions were mediocre to high among students, and the mean scores of most agency dimensions exceeded 3 (Figure 2), except for participation activity (*M* = 2.9, *SD* = 0.79). In the relational resource domain, both dimensions had the highest means: teacher support (*M* = 4.4, *SD* = 0.70) and trust in the teacher (*M* = 4.2, *SD* = 0.63). Within the personal resource domain, competence beliefs (*M* = 3.5, *SD* = 0.83) and self-efficacy (*M* = 3.7, *SD* = 0.87) were above 3. In the participatory resource domain, means ranged from below 3 for participation activity (*M* = 2.9, *SD* = 0.79) to over 4 for interest and utility value (*M* =

4.1, *SD* = 0.55). Other dimensions in this domain were above 3: opportunities to influence (*M* = 3.2, *SD* = 0.65) and ease of participation (*M* = 3.6, *SD* = 0.67).

Figure 2

Means of Dimensions of Student Agency
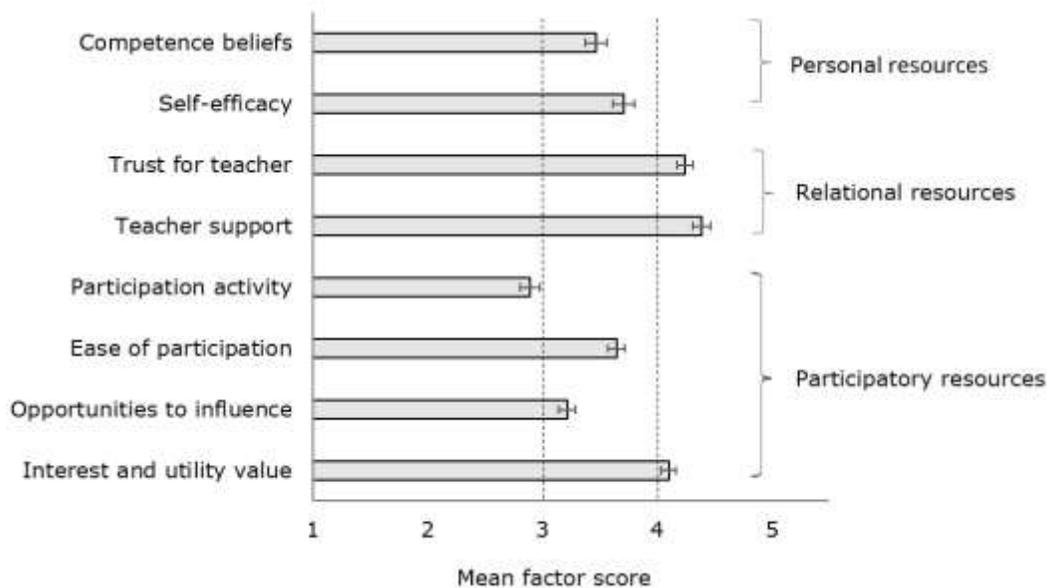
Note. Means and 95% CIs of factor scores for each dimension of agency among UAS students (*N* = 309).

Associations of Student Agency with Background Characteristics

Differences between genders, field of study, age groups and study credits were found in agency dimensions. Significant interaction effects were observed between background variables in four agency dimensions (Figure 3), although effect sizes indicated that these differences were only small to medium (Appendix A). Interactions between field of study and gender were significant for competence beliefs and self-efficacy (both *p* = .003). Mean scores for competence beliefs were higher among men in business management compared to men in technology (*p* = .008). Gender differences in self-efficacy appeared only within business management: men scored significantly higher than women (*p* = .038).

An interaction between gender and study credits was found for teacher support (*p* = .042), but no significant group differences were found. For participation activity, the effect of field of study varied by age group (*p* = .021). Among students aged 22 or older, participation activity was significantly lower in business management than in technology (*p* = .036).

Figure 3

Significant Two-Way Interaction Effects of Background Characteristics
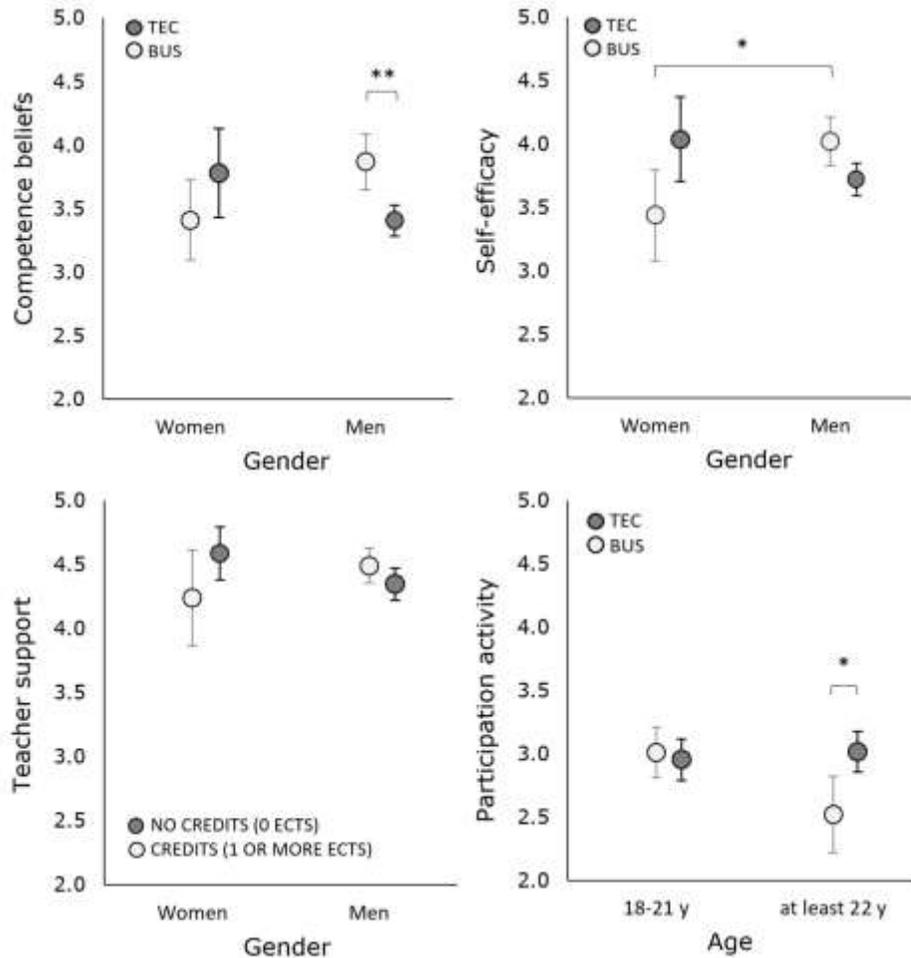
Note. Significant interaction effects from ANOVA (*n* = 262) (means and 95% CI). Tec = Technology students, Bus = Business management students. * *p* < .05, ** *p* < .01 for pairwise comparisons.

Beyond the interaction effects, an examination of differences in individual background characteristics (see Appendix A) revealed that competence beliefs were significantly higher among students aged 21 years or younger compared to those aged 22 or older (*p* = .024). Field of study significantly predicted relational resources: technology students scored higher than business management students on trust in teachers (*p* < .001) and teacher support (*p* = .004). Furthermore, technology students reported higher scores for ease of participation and interest and utility value than business management students (*p* < .001, *p* = .008, respectively). Age also predicted opportunities to influence, with students aged 18–21 scoring significantly higher than those aged 22 or older (*p* = .028).

Study 2: Individual Temporal Stability and Changes in Student Agency

Methods

Participants, Data Collection and Study Design

Study 2 focused on exploring the individual stability and changes in student agency with both repeated quantitative measurements and complementary qualitative descriptions from a single course. The course lasted for 10 weeks in 2020, with 32 students enrolled, of whom 16 answered the AUS questionnaire two or three times. The first measurement (n_{t1} = 15) was at the beginning of the course, the second measurement (n_{t2} = 12) was three weeks later, and the third measurement (n_{t3} = 12) was at the last session of the course. The course was the first basic mathematics course for full-time business management students studying a Bachelor of Business Administration (BBA) degree. The course consisted of lectures and a demo session each week. It was possible to choose between in-class and independent online implementation, but face-to-face demo sessions and remedial teaching were offered for all participants.

Five students (*id* = 3, 8, 9,10, and 14) were interviewed to provide insights into resources contributing to their perceived agency, thereby complementing the quantitative findings. Students were selected based on differing temporal patterns of agency change identified from the results of the AUS questionnaire (see Figure 4). Students participated in approximately two-hour semi structured interviews in spring 2021, reflecting reasons for temporal stabilities and changes in the means of agency dimensions during the course. During interviews, a visualisation of the students' personal mean scores from the agency dimensions at all time points was shown, and the students were encouraged to freely describe their perceptions with confidence. The interviews were performed and recorded on an online video platform (Zoom).

Data Analyses

First, to compare agency across time points at the individual level using quantitative repeated questionnaire data, we employed the eight-factor model of agency, utilizing scaled factor scores as the basis for analysis. Pairwise differences in means of dimensions of agency across time points were calculated for each participant. The statistical significance of differences was evaluated by comparing these computed differences to a cut-off value for a statistically significant absolute difference. A detailed description of the analytical procedures and results is provided in Appendix B. All analyses were conducted using Mplus Version 8.10 (Muthén & Muthén 1998–2017), R 4.2.1 (R Core Team, 2022) and IBM SPSS Statistics 28.0.0.1.

A content analysis (Patton, 2002) was conducted on five transcribed interviews to identify aspects that students perceived as supporting or constraining individual agency. The transcripts were read, and the recordings listened to multiple times, and all content relevant to agency was highlighted to ensure comprehensive coverage. Highlighted expressions were then categorized as either supporting or constraining agency, based on students' interpretations. These results were subsequently quantified and tabulated according to the domains of agency within the course-level learning environment. The first author carried out the analysis and engaged in regular discussions with the co-authors throughout the process to enhance credibility (Guba, 1981; Patton, 2002).

Results of Study 2

Individual Temporal Stability and Changes in the Dimensions of Agency

Substantial individual-level variation in agency was observed during a single course, with some participants showing statistically significant changes in agency over time (Figure 4 and Appendix B). The direction and magnitude of temporal changes varied considerably. For instance, participants with *id* = 3 and 4 exhibited numerous substantial shifts in agency over time, with most significant changes occurring in the same direction within a given timeframe, indicating an overall increase or decrease in agency. In contrast participant *id* = 1 showed a marked decline in competence beliefs and self-efficacy from the beginning to the end of the course, while ease of participation increased during the same period. Almost opposite patterns were observed for participant *id* = 10 between the start and the midpoint of the course. These cases illustrate that, although significant changes in agency dimensions occurred within the same context, their direction and magnitude differed markedly across individuals.

Nevertheless, agency remained relatively stable over time for some students. For example, participants with *id* = 5 and 9 showed only a few significant changes. Their agency in the relational domain was consistently high throughout the course, whereas in the participatory domain, perceived participation activity and opportunities to influence were lower and fluctuated slightly. Interestingly, only one student, participant with *id* = 8, exhibited no statistically significant changes over time, although the levels of the agency dimensions varied. Thus, even when agency appeared stable, certain dimensions were constrained. Overall, the findings reveal highly individual patterns of temporal change across agency dimensions.

Figure 2

Individual Temporal Variation in Dimensions of Agency
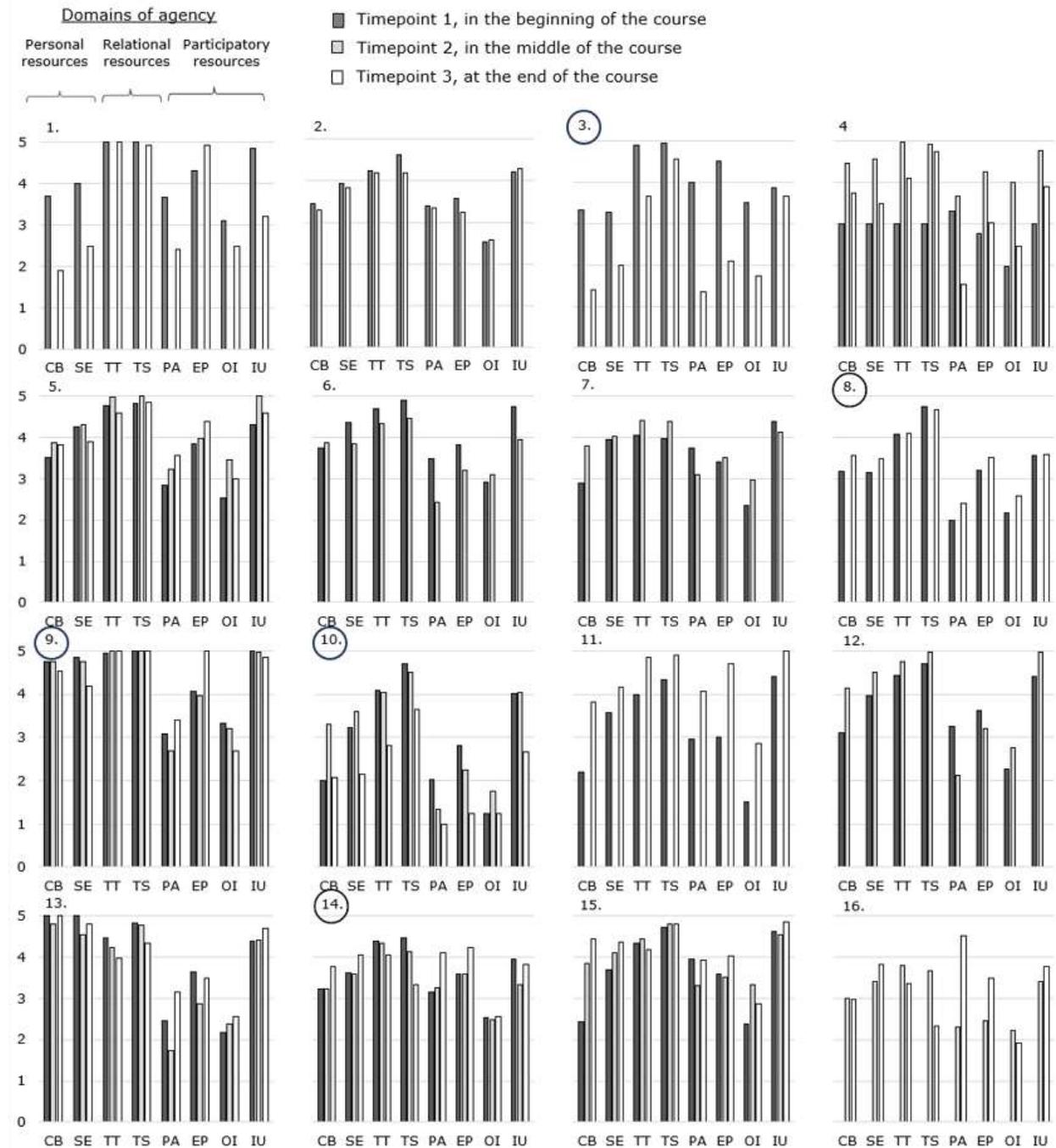
Note. Mean factor scores for each student (*N* = 16) at three time points. Circled numbers indicate the five participants interviewed. Dimensions of agency: CB = competence beliefs, SE = self-efficacy, TT = trust for teacher, TS = teacher support, PA = participation activity, EP = ease of participation, OI = opportunities to influence, IU = interest and utility value.

Perceived Resources Contributing to Agency - Results from the Interviews

The students displayed distinct profiles in their responses to the agency questionnaire (AUS) (see Figure 4). Interviews on the aspects supporting or constraining agency revealed that factors contributing to agency were primarily related to perceived support and sense of capability. However, interpretations varied markedly between the students, reflecting individualized understanding of the situation as well as agency within the course context. These interpretations related agency encompassed aspects such as expectations of one's own abilities, approach to failure, clarity of course aims and practices, and teacher responsiveness. Almost all identified aspects exhibited both constraining and supporting effects, depending on the student's perspective and situation at the moment (Table 1).

Table 1

Aspects Contributing to Student Agency

Domain of agency	Aspect	Supporting agency	Constraining agency
		Number of Mentions	Number of Mentions
Personal domain	Prior knowledge of the subject	10	6
	Expectations of own abilities	0	15
	Approach to failure	0	17
Relational domain	Taking responsibility and own attitude toward studying	7	11
	Opportunities to choose learning methods	6	3
	Teacher responsiveness	20	11
	Practical support from the peers for course-related tasks	5	5
	Practical utility value of the course themes for the future	7	1
Participatory domain	Teacher attitude	5	0
	Clarity of aims and practices in the course	5	0
	Classroom atmosphere	9	1

Aspects contributing to student agency further illustrated how each student's perspective at a given point in time shaped their agency experience (Table 1). Within the personal domain, prior competence in the subject strongly supported agency, whereas unrealistic expectations and unconstructive responses to fear of failure constrained it. Some comments on fear of failure were also linked to temporary technical issues, which were particularly common among students who chose the online implementation of the course. Moreover, excessively high expectations of personal competence led one student to select an independent online study

option, which ultimately resulted in loss of motivation, feelings of failure, and reduced self-efficacy. Limited perceived support from teachers and peers further constrained agency, creating a detrimental cycle triggered by the overestimation of competencies.

In the relational domain, agency was primarily supported by perceived teacher responsiveness, which related to students feeling heard by an interactive teacher who facilitated dialogue throughout the course. Teacher responsiveness also enabled mutual peer support through guided discussions and sharing, whereas unresponsiveness and perceived disinterested of the teacher were seen as constraining relational agency among students. Other factors that supported agency included taking responsibility for one's studies, showing determination, and being solution oriented. Moreover, opportunities to choose learning methods and proactively utilise those options supported student agency, whereas a fully predetermined study protocol was perceived as constraining agency. Good peer relations—characterized by practical support and the presence of others rather than their absence—further strengthened relational agency. Also, the perceived utility value of the course was crucial for relational agency among those who found the themes meaningful rather than unclear. Overall, hindered relational agency was associated with feelings of confusion and disorientation among students.

Participatory resources for agency were supported by emotional encouragement from a kind, non-intimidating teacher, well-structured and transparent course aims and practices, and a welcoming classroom atmosphere. Only one mention was identified as constraining participatory agency, and it related to unwelcoming classroom atmosphere. Finally, aspects associated with agency varied, and included mainly mentions related to competence beliefs, classroom atmosphere, and perceptions of clarity and relational support. Overall, various enabling and constraining aspects emerged in different situations, highlighting student agency as strongly situational, individually framed, and context dependent.

General Discussion

The purpose of the present study was to examine higher education (HE) students' multidimensional agency experiences and the individual temporal dynamics of agency. The first sub-study examined students' perceptions of agency in HE with respect to personal, relational and participatory resources, and explored the associations between agency domains and background variables. The second sub-study aimed to explore the stability and change of agency during a single course and to capture students' unique explanations for aspects contributing to their experienced agency.

Agency of First-Year Students

The results of Study 1 highlight the significance of a multidimensional perspective for agency, as the results varied within the resource domains. In the domain of relational resources, trust for teacher and teacher support were perceived on average good (means exceeding a score of 4). This aligns with earlier findings indicating that relational resources are typically perceived as high among Finnish HE students (Jääskelä et al., 2020). Furthermore, relational aspects—such as support from and interaction with teachers—have been emphasised as key elements in supporting learning and motivation (Edwards, 2005; Lipponen & Kumpulainen, 2011; Opdenakker, 2023). Conversely, insecure relationships with teachers have been suggested to constrain agency or trigger maladaptive forms of agency among HE students (Harris et al.,

2018). Therefore, although the mean scores in the domain of relational resources were generally high, the observed deviation indicates a need to develop ways to identify individuals who experience challenges in teacher–student relationships in order to provide targeted support.

In the domain of participatory resources, variation in the mean scores of agency were found. For example, participation activity was perceived on average low, but interest and utility value of the course contents were perceived on average high. Additionally, in the present study, interest and utility value as well as ease of participation showed a mediocre to high correlation with participation activity. As earlier studies have shown, interest in studies can enhance motivation and increase behavioural and social engagement (e.g., Renninger & Hidi, 2017), facilitating participatory agentic actions. This also underlines the associations of agency and concepts close to agency, such as engagement (e.g., Klemenčič, 2015). Overall, these findings reinforce earlier research indicating that interest and perceived ease of participation can facilitate engagement in participatory activities; moreover, this association may be mediated (e.g., Leijen et al., 2020). Therefore, interaction with individual-level affordances for participation can be guided, for example, by individual characteristics.

The domain of participatory resources for agency in this conceptualisation encompassed diverse aspects related to opportunities, influence, activity and finding peers as resources (Edwards, 2005; Lipponen & Kumpulainen, 2011), which were correlated but varied in perceived extent. A previous study utilising the same AUS scale in HE identified latent student profiles, including groups with overall high or low agency, as well as a distinct group characterised by lower participatory resources (Jääskelä et al., 2020, 2021). Therefore, participatory resources appear to constitute a distinctive agency resource domain among students.

In the current study, significant interaction effects were found between background characteristics, particularly between field of study and gender, for example within the personal resource domain for agency. These interactions could be induced, for example, by gendered beliefs related to competencies and efficacy in the study fields. Furthermore, compared with business management students, technology students had on average, higher perceived trust for teachers, teacher support, ease of participation and interest and utility value. Educational environment and agency have often been shown to be associated (Stenalt & Lassesen, 2022), and differences between study programmes have also been presented previously (e.g., Matos et al., 2018). The results of the present study highlight these differences across fields of study. Therefore, the conditions in the classroom and in the everyday interactions in which students engage- shaping and providing access to different resources for agency in HE- can yield differences between fields even within the same educational institution.

Agency has often been associated with progress of studies and academic performance (e.g., Lynam et al., 2022), but especially with social support and teacher–student relationships (e.g., Mishra, 2020; Nurmi, 2015). However, in this study, no significant differences in agency were observed between those with and without completed study credits. This could be due to most students being at the beginning of their studies or to a robust dichotomic classification of credits. However, in the present study, interactions between completed study credits and gender in terms of teacher support were observed. This interaction could be connected to increased support at the beginning of studies, which was also highlighted in an earlier study (Soini et al.,

2015). The results also raise a question regarding the gendered availability of and need for support.

Overall, the significant gender differences found in the results may indicate that women and men respond differently to the demands of HE, perhaps because of gender stereotypes in Western societies (Schoon & Eccles, 2014). The findings also emphasise the importance of addressing and reducing gender inequalities early in academic programmes to ensure equal opportunities for the successful completion of studies. Overall, enabling the equal opportunities for learning (OECD, 2018), supporting student agency, and developing agentic action via reflection are significant for demands of HE and work in the future.

Temporal Stability and Changes in Agency

Students' resources for agency exhibited both stability and significant temporal changes with varying directions and magnitudes in repeated measurements from a single course (Study 2). The results confirmed our hypothesis that agency is highly subjective and related to personal evaluations of each situation in the learning context. Overall, students related the stability or changes in agency to support from teachers and peers, and the sense of capability in their studies. Students also highlighted active participation as significant for their agency.

Proactive support enabled student agency, which was also highlighted in Study 1. However, each student described the support in a different way, including emotional and practical teacher support, which was manifested in facilitated discussions and opportunities to ask questions in an open atmosphere. In contrast, a shortage of facilitated teacher support constrained agency, which was described by a lack of communication and timely assistance. The quality of peer relations and trust in peers are positively associated with students' sense of agency (Jääskelä et al., 2017; Soini et al., 2015). In contrast, social concerns can restrict engagement in interactions and agency (Stenalt, 2021). Peer support, particularly peer-to-peer discussions, was seen crucial for agency in this study, to receive practical help and to unburden emotions. Therefore, although peer support was not invariant in Study 1—indicating variation in how it is experienced or understood across groups—interview data highlighted overall importance of peer support for agency.

The students also related temporal changes in agency to their sense of capability, or to having possibilities to increase competencies, albeit in diverse and individualised manners. Conversely, the results also suggest that insecurity or misjudgement of one's own competencies may stimulate effortless study and nonparticipation. If students then face problems and cannot succeed, the situation may trigger feelings of incapability. These problems can ultimately constrain agency during the course. However, with guided affordances for reflection on action in practice, problematic experiences could also serve as opportunities to learn from mistakes (see, e.g., Leijen et al., 2020, among teachers), potentially influencing student behaviour and supporting agency development in the future.

Overall, the interviews revealed individual and situational nuances underlying the observed changes in agency, offering insights that complemented the questionnaire findings. In addition to the dimensions captured by the AUS scale, students emphasized that clear and accessible communication supported both learning and agency. Conversely, even minor issues or disruptions could evoke feelings of insecurity and diminish their sense of capability, potentially

reducing the personal resources for agency. Additionally, dimensions of agency might also evolve in distinct manners, and a lack of agentic resources may accumulate in complex ways over time. Because different dimensions of agency can serve as critical resources in different situations, developing student agency in its entirety during HE studies may require supporting all components of agency over time (Soini et al., 2015).

Implications for Future Studies

Multidimensional agency was examined using repeated measures, an approach that has rarely been utilized in previous agency research (Vaughn et al., 2020). Longitudinal designs allow for a detailed exploration of the temporal dynamics of agency dimensions at the individual level and provide valuable insights for supporting agency development. Although this study was conducted within a specific national and institutional context, the findings have broader relevance for research on student agency. For instance, while many earlier studies have emphasized the role of teacher behaviours and classroom practices in shaping student outcomes (Opdenakker, 2023), these associations may be influenced by students' experiences of agency across different contexts. The eight-factor model employed here, together with the observed patterns of individual-level changes in agency during a single course, reflects processes that are likely to be common across educational systems as students navigate their studies and transitions in learning. Further analyses could examine the associations between agency and a wider range of personal characteristics, background factors (e.g., diverse study backgrounds) and contextual elements (e.g., educational environments and pedagogical practices).

Interactions among background characteristics have rarely been explored in previous research, largely due to small sample sizes and the predominance of qualitative approaches (e.g., Vaughn et al., 2020), and existing findings have often been mixed. The findings of this study underscore the importance of examining these interactions. Structural opportunities and the removal of barriers, alongside individual resources in fostering agency—issues that are central to learning globally- can only be effectively supported by first identifying these differences. In addition, different pathways and reciprocal influences highlighted in earlier studies (e.g., Lazarides et al., 2023; Lazarides & Schiefele, 2024), as well as circular dynamics (see Lazarides & Schiefele, 2024; Mameli et al., 2022), warrant further investigation to provide more specific insights into the mechanisms through which different dimensions of agency affect learning and academic success in higher education contexts.

For practical implications, this study recommends practices that maintain and strengthen the various dimensions of student agency. Sustaining strong relational support and addressing gaps in participatory opportunities may help to reduce inequalities and ensure equity among students. Future interventions should take gender and disciplinary differences into account, as these showed the most pronounced disparities in this study. Importantly, because agency can fluctuate significantly within a single course, monitoring agency and adapting teaching strategies throughout the course may support individual agency trajectories. Providing facilitated support, consistent kind feedback, and fostering dialogue throughout the course is also essential, as these were identified as key factors in students' own explanations during interviews. Overall, for application within HE organisations, targeted interventions are required to deepen understanding of how stressors and resources interact within the learning environment over

time, thereby enhancing opportunities to tailor pedagogy and support effective management of resources for agency.

Limitations

The setting of the current study includes methodological and contextual features that may have affected the results. First, it is essential to examine the predictive validity and different criterion variables of the scale, and a larger follow-up data would enable testing the invariance of the AUS scale in time.

Second, the sample was only from one UAS, two fields of study and repeated measures from one course. Therefore, the results should be replicated in other HE contexts with larger data before generalising the results. Moreover, students in first-year courses in HE can have different views on agency than those further in their studies. Furthermore, data sets were nested within courses, but multilevel analyses were not feasible because the information on courses was not available.

Third, during the study period from autumn 2019 to December 2020, there was an outbreak of COVID-19 in Finland, causing severe social and economic disruptions. However, in the courses studied, the changes because of COVID-19 were minor. Nevertheless, it is possible that the students were distracted by the pandemic, which may have affected the results. However, the results were mostly in line with earlier studies, but perhaps because of COVID-19 lockdowns, the results presented might underline the relational aspects even more.

Conclusions

This study contributes to the research on student agency by revealing differences between dimensions of agency and between background characteristics. The study also contributes to uncovering individual temporal variation in agency. In conclusion, the results underline not only the good level of agency in the HE context, but the multidimensionality and the dynamic nature of student agency. The findings indicate that promoting agency should focus on nurturing trustworthy social relations to foster support, supporting students' sense of capability continuously within the immediate educational environment, and providing students with opportunities to benefit from a variety of participatory resources. The findings also emphasise the importance of addressing contextualised inequalities to ensure equal opportunities for the successful progression of studies. Recognising and understanding this variability and individual differences in agency can be utilised to inform educational practices that contribute to supporting meaningful learning and the progression of studies for students in HE.

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Supplementary Data and Appendixes A and B

Supplementary files for this article can be found at https://doi.org/x.

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