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Organisational Dynamics of University Social Capital: Developing Constructs Through Factor Analysis

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Abstract: This study is designed to illuminate the role of four key constructs—teacher-student relationships, peer networks, satisfaction with support services, and employability trust—in shaping the social capital within universities. Utilising a sample of 1902 working students derived from the Eurostudent VII survey data, this research applies both exploratory and confirmatory factor analysis to validate the proposed model. The findings indicate that all four constructs demonstrate statistically significant and positive associations with university social capital. Crucially, the measures of reliability and validity are within an acceptable range, lending credibility to the findings. The teacher-student relationship was found to be the most influential factor, highlighting its crucial value in the functioning of social capital inside universities. Along with providing a framework for future studies on the ever-changing nature of social capital in universities, the results highlight the significance of cultivating an interconnected academic community, which enriches the educational organisation as a whole.

Keywords: *Employability trust, peer networks, support services, teacher-student relationships, university social capital.*

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Introduction

The concept of social capital within educational institutions, particularly universities, has garnered considerable attention in contemporary research, highlighting its pivotal role in shaping academic communities and enhancing educational outcomes. Social capital, fundamentally rooted in the theories of Bourdieu (1986) and Coleman (1988), is understood as the collective value of social networks and the inclinations that arise from these networks to do things for each other (Putnam, 2000). The intricacies of social capital extend to trust, norms, and networks, facilitating coordination and cooperation for mutual benefit (Fukuyama, 1995).

Recent research has acknowledged the diverse effects of social capital in the context of higher education (Toyon, 2023b). University social capital, encompassing relationships among students, faculty, and administrative staff, is pivotal in fostering academic success, enhancing employability, and facilitating a supportive learning environment (Baker-Doyle, 2015; Stanton-Salazar, 2011). Research has particularly emphasised the importance of teacher-student relationships, peer networks, and the broader institutional support framework in cultivating a thriving academic community (Carbonaro, 1998; Perna & Titus, 2005).

There is a diverse array of viewpoints and approaches to the research that has examined the structural and functional aspects of social capital in academic institutions. For instance, Tinto (1997) and Zhao and Kuh (2004) examined the impact of student-faculty interactions on student retention and success, highlighting the crucial role of these relationships in the academic and social integration of students. Moreover, Coleman's (1988) seminal work laid the groundwork for understanding the role of social capital in creating educational opportunities, especially through parental involvement and community ties.

Despite the wealth of knowledge, certain nuances of university social capital remain underexplored. Notably, there is a paucity of empirical studies that simultaneously address multiple dimensions of university social capital, such as teacher-student relationships, peer networks, satisfaction with support services, and employability trust. Moreover, the

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methodological approaches to validate these constructs, particularly through confirmatory factor analysis, are not extensively documented.

In light of the identified research gap, this study poses the following question: Do teacher-student relationships, peer networks, satisfaction with support services, and employability trust contribute to the social capital of university? The primary objective of this research is to develop and validate a model that encapsulates these constructs of university social capital, employing statistical methods such as exploratory and confirmatory factor analysis.

The impetus for this research is twofold. Firstly, it aims to contribute to the theoretical understanding of social capital in higher education by integrating these constructs into a coherent framework. Secondly, it seeks to offer practical insights for university administrators by identifying key areas, such as teacher-student interactions and support services, where targeted interventions can significantly enhance social capital.

Literature Review

Conceptualising the Constructs

Social capital in the context of universities encapsulates the networks, relationships, norms, and trust that exist within the institution, fostering cooperation, support, and academic achievement (Toyon, 2023b). Bourdieu (1986) conceptualised social capital as the aggregate of actual or potential resources linked to the possession of a durable network of institutionalised relationships of mutual acquaintance and recognition. By applying this notion, this study understands that within the university setting, social capital is not merely a byproduct of educational processes but a fundamental element that shapes the educational journey and outcomes of students. Coleman (1988) argued that social capital levering could give certain future benefits to people who can use it. In this sense, social capital in educational settings facilitates the transmission of information and upholds norms that promote academic success.

When dealing with university social capital, teacher-student relationships cannot be ignored. This study understands that the dynamic between teachers and students is a critical component of university social capital and can influence academic motivation, engagement, and the overall quality of the educational experience of different students, including university students. Muller (2001) has contributed a pivotal study examining how social capital, as defined by a relationship that facilitates action, is especially high for at-risk students who feel their teachers are interested, expect them to succeed, listen to them, praise their effort, and care. In fact, Muller (2001) provides empirical evidence supporting the role of tailored teaching approaches in fostering academic success. Aslam and Khan (2020) analysed the effects of constructive feedback mechanisms on student success. They offer a nuanced understanding of the psychological underpinnings that link positive reinforcement from faculty to enhanced student effort and achievement. Dimitriadis et al. (2012) conducted a study on the outcomes of faculty mentorship programmes, showing that high-performing students were significantly more likely to participate in formal mentoring programmes, and their most discussed topics between mentors and mentees included personal goals, career planning, and experiences abroad. Their study demonstrated the feasibility of a large-scale one-on-one mentoring programme for students, with mentors playing roles in counselling, providing contacts, and offering ideas to help mentees in various aspects of their development.

The above discourse surrounding teacher-student relationships echoes the interactionalist perspectives presented by theorists such as Astin (1984) and Tinto (1997), which delve into the nature and significance of these relationships within educational settings. Empirical studies have consistently demonstrated that positive teacher-student interactions are correlated with improved academic outcomes and student satisfaction (Komarraju et al., 2010; Pascarella & Terenzini, 2005). These relationships extend beyond the confines of the classroom, shaping students' academic self-concept, career aspirations, and the development of professional identities (Zimmerman, 2000).

This study also considers peer networks as another vital dimension of social capital in universities. The role of peers in academic and social integration has been widely acknowledged in the literature, with Tinto (1994) identifying peer interactions as a cornerstone of student retention and success. These networks provide emotional, social, and academic support, creating a community of learners who share resources, knowledge, and experiences (Thomas, 2000). The strength and quality of peer networks have been linked to higher academic achievement, persistence, and satisfaction with university life, highlighting their role in creating an enriching and supportive educational environment (Zhao & Kuh, 2004). Beyond the structural benefits, the interactions among students are instrumental in the development of vital competencies, which are essential for seamless integration into academic settings and sustaining academic success (Bulotsky-Shearer et al., 2012). These interactions are especially transformative for students hailing from different backgrounds, including working students, equipping them with critical skills that fortify their engagement with the academic community (Lundberg, 2003). It, in turn, fosters a positive view of their educational experience and the relationships they build within it.

Social capital is a resource at the university that includes both intangible and tangible infrastructural facilities. The provision of support service facilities is one of these aspects. Student support services are a crucial infrastructure within universities, addressing a wide array of student needs and facilitating academic success and well-being (Hayden

& Ledwith, 2014). These services encompass academic advising, psychological counselling, career guidance, and financial assistance, among others. The availability and quality of these services can influence students' perceptions of institutional support and their academic and social integration within the university community (Bean & Bradley, 1986; Kuh et al., 2006). Satisfaction with support services is not only linked to higher academic achievement but also to an overall sense of belonging and commitment to the institution, underscoring the pivotal role of these services in fostering university social capital.

This study views employability trust as another dimension of social capital that reflects students' confidence in their university's ability to prepare them effectively for the labour market. Employability as a construct is increasingly recognised as a critical component of the university ecosystem, as it encompasses students' perceptions of the value and relevance of their education in the context of future career success. A strong sense of employability trust enhances student motivation, engagement, and satisfaction and contributes to the reputation and attractiveness of the institution (Tomlinson, 2008; Yorke, 2006). Universities that successfully instil a high level of employability trust are viewed as not just educational institutions but as gateways to professional success and personal development.

Relevant Theories

Several theoretical frameworks have been pivotal in understanding and analysing the nature of social capital within university settings. These theories provide a foundation for comprehending the intricate dynamics of teacher-student relationships, peer networks, student support services, and employability trust.

Bourdieu's (1986) theory offers a comprehensive perspective on social capital, emphasising the value of social networks and relationships in accruing benefits and resources. Bourdieu (1986) argued that social capital is a collection of actual or potential resources that accrue to an individual or a group by virtue of possessing a durable network of more or less institutionalised relationships of mutual acquaintance and recognition. In the university context, this theory underscores the importance of social networks, including teacher-student relationships and peer interactions, as capital that students can leverage for academic success and personal growth. Coleman's (1988) framework extends the understanding of social capital to educational settings, emphasising its role in creating and maintaining norms that promote certain actions beneficial to the community. Coleman's theory is particularly relevant in understanding how social capital functions within the educational milieu, fostering cooperation, trust, and shared norms. Applied to the context of higher education, his notion suggests that students are often part of various social networks such as study groups, clubs, and organisations; trust and reciprocity within these groups can foster a supportive environment that encourages academic collaboration and emotional support.

Similarly, Putnam's (2000) conceptualisation of social capital focuses on the features of social organisations, such as networks, norms, and trust, which facilitate coordination and cooperation for mutual benefit. Putnam's theory is particularly pertinent in understanding how social capital extends beyond individual relationships to encompass the broader community and institutional context. This perspective highlights the significance of student support services and institutional efforts in cultivating a supportive and interconnected academic community. Cohesive social networks according his theory facilitate the exchange of resources such as information about job opportunities, internships, and study materials, which can be instrumental in a student's academic and professional development. The sense of belonging and mutual support in these networks can also enhance students' resilience and their capacity to persist through difficulties. Furthermore, the skills developed by participating in such networks, including communication, teamwork, and problem-solving, are crucial for success both during and after university. Trust built within these networks can lead to high expectations and positive peer pressure, which can motivate students to achieve shared goals, such as high academic standards, and can be a significant predictor of university students' success

Tinto's (1997) model of student retention emphasises the importance of social and academic integration for student success in higher education. Tinto's theory provides a framework for understanding how teacher-student relationships, peer networks, and support services contribute to students' sense of belonging and commitment to their institution. The theory argues that a student's integration into the academic and social systems of the university is crucial for retention and success, making the quality of social interactions and support services pivotal components of the university experience.

The literature on employability (Hogan et al., 2013) provides a framework for understanding the attributes, skills, and competencies that enhance an individual's ability to secure and retain gainful employment, particularly in a rapidly changing job market. According to these researchers (Hogan et al., 2013) employability is not merely about acquiring a set of skills; it's about understanding and navigating the complex interplay of individual capabilities, market needs, and educational provisions. In the context of higher education, the notion of employability is especially pertinent as it directly affects the design and delivery of university programmes and the shaping of student expectations and outcomes.

Central to this employability is the notion that it extends beyond the acquisition of knowledge and technical skills and encompasses a broader range of attributes, including cognitive, social, and emotional competencies (Yorke, 2006). Hillage and Pollard (1998) defined employability as the capability to secure and maintain employment. This definition

underscores the dynamic nature of employability, suggesting that it is not a static set of skills but a continuous development process. Employability is about adaptability—the ability to think critically, work collaboratively, communicate effectively, and navigate complex and dynamic professional landscapes. It is about an individual's capacity to add value in the workplace, not just through task-specific skills but through a holistic set of attributes that enable innovation, problem-solving, and continuous learning.

In a university setting, the theory of employability takes on a critical dimension. It implies that higher education institutions have a pivotal role in not just imparting knowledge but also in shaping the employability skills of their students. This involves creating a learning environment that fosters critical thinking, problem-solving, creativity, and adaptability. It also involves providing students with opportunities to gain practical experience, engage with industry professionals, and understand the realities and expectations of the workplace.

The theory of trust (Mayer et al., 1995), when applied to the context of higher education, becomes intricately tied to the concept of employability. Trust is traditionally conceptualised as a multidimensional construct comprising competence, benevolence, and integrity (Mayer et al., 1995). In the context of employability trust, competence refers to the belief in an institution's capabilities to provide education that is relevant and valuable in the labour market (Hardin, 2002). Benevolence is seen as the extent to which the institution is believed to genuinely care about the students' future career success beyond its own self-interest (McAllister, 1995). Integrity involves the belief that the institution adheres to a set of principles and communicates honestly about its ability to enhance students' employability (Mayer et al., 1995). Trust-building in this context is a complex interplay of cognitive, affective, and behavioural elements, initiated through consistent interactions that demonstrate the university's investment in its students. Employability trust is thus an expectation of action—students' confidence in their university's provision of the necessary academic knowledge and practical skills for job market success. It involves vulnerability and dependency; students entrust their educational journey to their institution, anticipating that this choice will pay dividends in the competitive job market. Furthermore, this trust is grounded in the perception of the university's expertise, industry connections, and student-centeredness (Toyon, 2024).

Proposed Model and Hypotheses

The previous sections have delineated many components that constitute social capital at universities. The term encompasses the interconnectedness and associations between students, faculty, and external entities, which are vital for the interchange of information and resources. Establishing and maintaining norms and trust within the university community is crucial for promoting collaboration and assistance. The dynamics between teachers and students have an important effect on academic motivation and engagement, ultimately affecting the quality of education and the satisfaction of students. Peer networks have a crucial role in facilitating both academic and social integration, providing necessary emotional, social, and academic assistance. An essential component for promoting academic achievement and overall welfare is the establishment of a robust framework for student support services, encompassing counselling and career advising. Moreover, the level of employability trust, which signifies students' belief in their university's capacity to equip them for the job market, has an immediate effect on their motivation and involvement. Taking into account these perspectives, this study has developed a theoretical model, as illustrated in Figure 1. Based on this model, a series of hypotheses have been formulated to guide the empirical investigation and validate the conceptual framework.

Hypothesis 1: A positive relationship exists between teacher-student relationships and university social capital.

Hypothesis 2: A positive relationship exists between peer networks and university social capital.

Hypothesis 3: A positive relationship exists between satisfaction with support services and university social capital.

Hypothesis 4: A positive relationship exists between employability trust and university social capital.

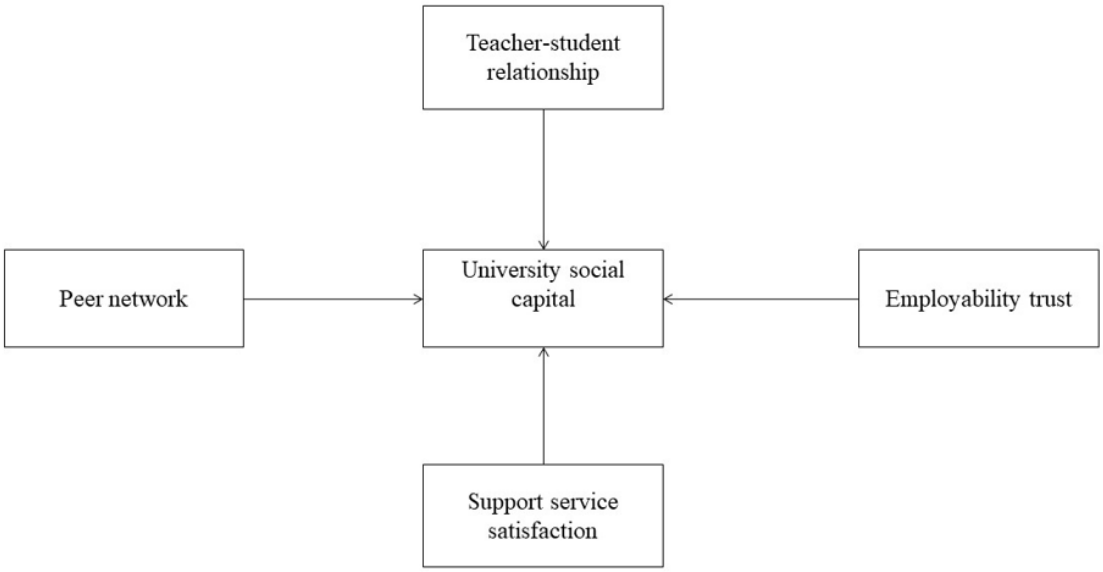

Figure 1. Hypothesised Model

Methodology

Source of Data

The present study utilises data from the Eurostudent VII survey (Cuppen et al., 2023), which applied the full population survey methodology throughout its data gathering phase in Estonia from February to July 2019 (Cuppen et al., 2021). The survey has collected responses from 1,902 working students, providing a comprehensive dataset that is crucial for analysing the socioeconomic situation of higher education in Estonia and gaining insight into the distinct experiences of university students. In the context of this study, 'working students' refers to individuals enrolled in university who simultaneously engage in employment. By juggling employment and academic obligations concurrently, they constitute a distinct subset of the university populace that lends itself to the examination of social capital in higher education.

The choice to focus on working university students from Estonia in this study is motivated by the goal of exploring the intricate connection between their professional and academic responsibilities. These students find themselves at the crossroads of external professional expectations and the pursuit of academic excellence, a contrast that is increasingly prevalent in Estonia's higher education system (Toyon, 2023a). Importantly, their concurrent positions as both employees and students offer distinct perspectives on the distribution and utilisation of social capital within the educational setting. Such dichotomy is particularly relevant in influencing university policies and support structures that aim to promote a balance between work and education. Given the increasing number of students who have jobs, it is essential to involve them in academic research to guarantee that the study findings accurately reflect the experiences of the whole student population. Concentrating on the experiences of working students opens a window into understanding the specific ways in which they interact with, contribute to, and benefit from university social capital.

Characteristics of the Sample

The age range of these students spans from young adults to those over 30, reflecting a diverse student body. A significant proportion, about 35.9%, are 30 years or older, indicating a substantial presence of mature students. The 22 to under 25 years age group constitutes 24.3%, and those aged 25 to under 30 years make up 21.3%. Students up to 21 years old account for 18.5%. The age distribution suggests that the working student population is not just traditionally aged university goers but includes a considerable number of older individuals, possibly engaging in higher education later in life or pursuing further studies.

There is a noticeable gender disparity, with females comprising 76.9% of the student population and males comprising 23.1%. The skew towards female students reflects broader trends in higher education participation by gender in Estonia or represent the border student population where the number of females is higher than that of males.

In terms of qualifications, 57.7%, or 1098 participants, is engaged in pursuing a bachelor's degree (ISCED 6). Master's degree students represent a substantial segment as well, accounting for 36.6%, or 697 individuals, of the sample, while a smaller group of 5.6%, or 107 participants, is dedicated to a long national degree programme (more than 3 years, ISCED 7).

The composition of the sample in terms of gender distribution skews towards female participants, who constitute 76.9% (1463 individuals) of the study's respondents. In contrast, male participants represent a smaller proportion,

accounting for 23.1% (439 individuals) of the total sample. This gender distribution mirrors the broader trend of female predominance in the student population, reflecting the demographic realities of Estonian higher education. Diving into the fields of study, the sample presents a broad spectrum. Education is the choice of 11.1% of the participants, amounting to 212 individuals. The arts and humanities fields attract 16.6%, or 316, of the participants, while the social sciences, journalism, and information sectors engage 13.3%, or 253 students. The largest group within the sample is found in the business, administration, and law disciplines, encompassing 19.3%, or 367 participants. Natural sciences, mathematics, and statistics are pursued by 6.4%, or 122 students. ICTs are selected by 7.9%, or 151, of the sample, and engineering, manufacturing, and construction by 5.0%, or 95 participants. Agriculture, forestry, fisheries, and veterinary fields are the least favoured, chosen by only 0.8%, or 15 participants. The health and welfare sector is pursued by 15.4%, or 293 of the participants, while services attract 3.9%, or 75 students. The total count of valid field of study responses stands at 1899, which is 99.8% of the sample, with a small fraction of 0.2%, or 3 participants, not providing an answer.

Table 1. Operationalisation and Variable

Items used for operationalisation	Mean	Standard deviation
Lecturers give helpful feedback	2.299	1.0502
Lecturers motivate to do best work	2.559	1.0372
Lecturers extremely good at explaining things	2.365	0.8505
Get along well with lecturers	1.823	0.8094
Lecturers interested in what students has to say	2.267	0.9955
Knows a lot of fellow students to discuss subject-related questions	2.262	1.1398
Contact with many students in study programme	2.391	1.2030
Satisfaction with study support services (e.g., organised tutoring, academic writing, bridging courses, mentoring)	3.401	1.7085
Satisfaction with provision of learning facilities (e.g., library, computer centre, work places)	2.244	1.4387
Satisfaction with support to balance my studies and paid job	3.679	1.5139
Satisfaction with support to balance my studies and family	4.044	1.6595
Satisfaction with support in the preparation for my (future) work life	3.368	1.4783
How well the study programme prepares for the national labour market	2.485	1.3683
How well the study programme prepares for the international labour market	3.379	1.5663

Source: Calculated by author based on empirical data

Operationalisation and Variable

The conceptualisation of university social capital within this study has been operationalised through the selection of pertinent variables (see Table 1). The dimension of the teacher-student relationship is captured through various items on a 5-point Likert scale, gauging lecturers' feedback quality, their ability to motivate students, the clarity of their explanations, the rapport between lecturers and students, and lecturers' interest in students' opinions. Peer networking is examined through queries that determine the extent of students' subject-related discussions with peers and the breadth of their contact within the study programme, also measured on a 5-point Likert scale. Satisfaction with student support services is quantified using a similar scale, including items that probe into the adequacy of academic support services and resources, as well as the assistance provided for managing academic commitments alongside work or family responsibilities. Finally, employability trust is measured by students' perceptions of how effectively their study programme equips them for local and global job markets, with responses ranging from 'very well' to 'very poorly' on a 5-point scale.

Analytical Techniques

Field (2009) has outlined a set of methodological steps for conducting factor analysis. Exploratory factor analysis (EFA) is a statistical technique used to uncover the underlying structure of a relatively large set of variables. EFA is used to identify the underlying relationships between measured variables and to reduce the data to a smaller set of summary variables while retaining as much of the original information as possible. The steps in conducting an EFA typically include determining the factorability of the data, extracting factors through a method such as principal component analysis or maximum likelihood, determining the number of factors, usually via eigenvalues and scree plots, rotating the factors for easier interpretation (using methods such as Varimax or Oblimin), and finally interpreting and naming the factors based on the factor loadings of the variables. This study utilised SPSS 23 version for data analysis, employing principal component analysis and Varimax rotation, with eigenvalues used to determine the number of factors.

Confirmatory Factor Analysis (CFA) is a statistical method used to test whether a set of observed variables measures a number of specific constructs or factors (Byrne, 2010). It differs from exploratory factor analysis in that it tests a hypothesis or theory about the structure of the data rather than discovering it. The process involves specifying a model based on theory, estimating the model parameters using software (e.g., AMOS), assessing the model fit by examining various fit indices, and possibly modifying the model to improve fit. This study has employed AMOS for conducting CFA,

which allows for a visual representation and modification of the model and provides detailed output for evaluating model fit. In factor analysis, the comparative fit index (CFI) and Tucker-Lewis index (TLI) are used as incremental measures of fit, with acceptable values being equal to or greater than .90. The root mean square error of approximation (RMSEA) serves as an absolute measure of fit, where values less than or equal to .05 indicate a good fit and those between .05 to .08 are considered reasonable. These guidelines are based on standards mentioned by different researchers (see Table 2).

Table 2. Model Fit Indices

Model fil indices	Index types	Acceptable value	References
Incremental measure of fit	Comparative Fit Index (CFI)	CFI ≥ .90	(Bentler & Bonett, 1980)
	Tucker-Lewis index (TLI)	TLI ≥ .90	(Tucker & Lewis, 1973)
Absolute measure of fit	Root Mean Square Error Approximation (RMSEA)	≤ .05 = good fit; .05 to ≤ .08 = reasonable fit	(Diamantopoulos & Siguaw, 2006)
	Goodness of Fit Index (GFI)	GFI ≥ .90	(Hu & Bentler, 1999)
Parsimonious fit	Chi-square/ Degree of Freedom	Chi square/*df* < 5.0	(Safiih & Azreen, 2016); (Hair, 1998)

Source: Composed by author based on literature

Figure 2 outlines the validity measures used in this research to ensure the accuracy and appropriateness of model. Content validity is established through a review of the literature and by obtaining expert opinions (e.g., from senior colleagues) to confirm that the test items adequately cover the construct being measured. Construct validity is split into convergent and discriminant validity. Convergent validity is confirmed when a test correlates well with other measures of the same construct, as indicated by a composite reliability (CR) of .7 or higher and an average variance extracted (AVE) of .5 or greater. Discriminant validity is established when the test does not correlate too highly with measures from different constructs, as shown by the AVE being greater than the maximum shared squared variance (MSV) and the AVE being greater than the average shared variance.

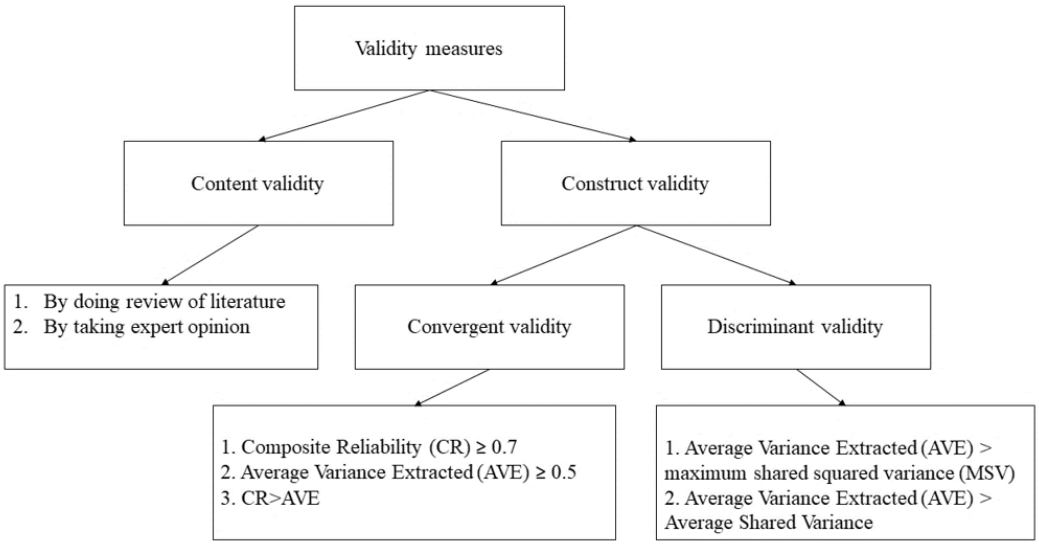

Figure 2. Validity Measure

Results

Results From Exploratory

Factor Analysis

In the EFA, the Kaiser-Meyer-Olkin (KMO) measure reported a value of .801 indicating that the proportion of variance among the variables that might be common variance is quite high. It suggests that the sample size is sufficiently large to capture the underlying factors reliably. The Bartlett's Test of Sphericity returned a Chi-square value of 7818.604 with 66 degrees of freedom (*df*). The statistically significant ($p < .001$) result here implies that the variables are correlated to a degree that is suitable for conducting a factor analysis.

The total variance explained by the EFA was 69.68%, which is a substantial amount; it indicates that the factors extracted during the analysis account for a majority of the variance observed in the variables, which is a good indication that the model has captured the main elements that contribute to the constructs.

The factor loadings for the items related to the teacher-student relationship range from .740 to .781, which are quite strong, indicating a good representation of this construct. The Cronbach's alpha and composite reliability (CR) both stand at .84, suggesting high internal consistency and reliability of these items. The average variance extracted (AVE) is .51 and the maximum shared variance (MSV) is .18, demonstrating a good level of convergent and discriminant validity. For support services satisfaction, the factor loadings are also high (ranging from .646 to .870), reflecting a strong representation of this construct in the data. The Cronbach's alpha is .77 and the CR is .78, both indicating good reliability. The AVE of .54 and an MSV of .16 further affirm the construct's validity.

The factor loadings for peer network items are very high (above .89), showing a very strong representation of this construct. The Cronbach's alpha and CR are both .83, indicating excellent reliability. The AVE is .72, and the MSV is .12, which are very good, showing strong construct validity. The factor loadings for employability trust items are .848 and .817, suggesting a good representation. The Cronbach's alpha and CR are .66, which are somewhat lower but still acceptable for exploratory research. The AVE is .49 and the MSV is .18, which are on the borderline but acceptable for initial investigations.

Table 3. Factor Loading and Reliability

Item coding	Questionnaire items	Factor loadings	Cronbach's Alpha	CR	AVE	MSV
TSS	**Teacher student relationship**		.84	.84	.51	.18
Motivating_Teacher	Lecturers motivate to do best work	.781				
Engagement_Teacher	Lecturers interested in what students has to say	.765				
Feedback_Teacher	Lecturers give helpful feedback	.763				
Clarity_Instruction	Lecturers extremely good at explaining things	.746				
Rapport_teacher	Get along well with lecturers	.740				
SS	**Support services satisfaction**		.77	.78	.54	.16
Family_Study_Bal	Satisfaction with support to balance my studies and family	.870				
Work_Study_Bal	Satisfaction with support to balance my studies and paid job	.866				
Career_Prep	Satisfaction with support in the preparation for my (future) work life	.646				
PN	**Peer network**		.83	.83	.72	.12
Networking_Peer	Contact with many students in study programme	.912				
Collegiality_Peer	Know a lot of fellow students to discuss subject-related questions	.895				
ET	**Employability trust**		.66	.66	.49	.18
Employability_Nat	How well the study programme prepares for the national labour market	.848				
Employability_Intl	How well the study programme prepares for the international labour market	.817				

Notes: SD = Standard deviation, CR = Composite Reliability, AVE = Average Variance Extracted, MSV = Maximum Shared Variance (*Source:* Calculated by author based on empirical data)

Results From Confirmatory Factor Analysis

In the CFA, each factor loading represents the correlation between an observed variable and its hypothesised underlying factor (see Figure 3). The factor loadings in the model are all above the .50 benchmark, which is generally considered an indicator of a strong relationship. These values imply that the latent constructs are well-defined by the observed variables.

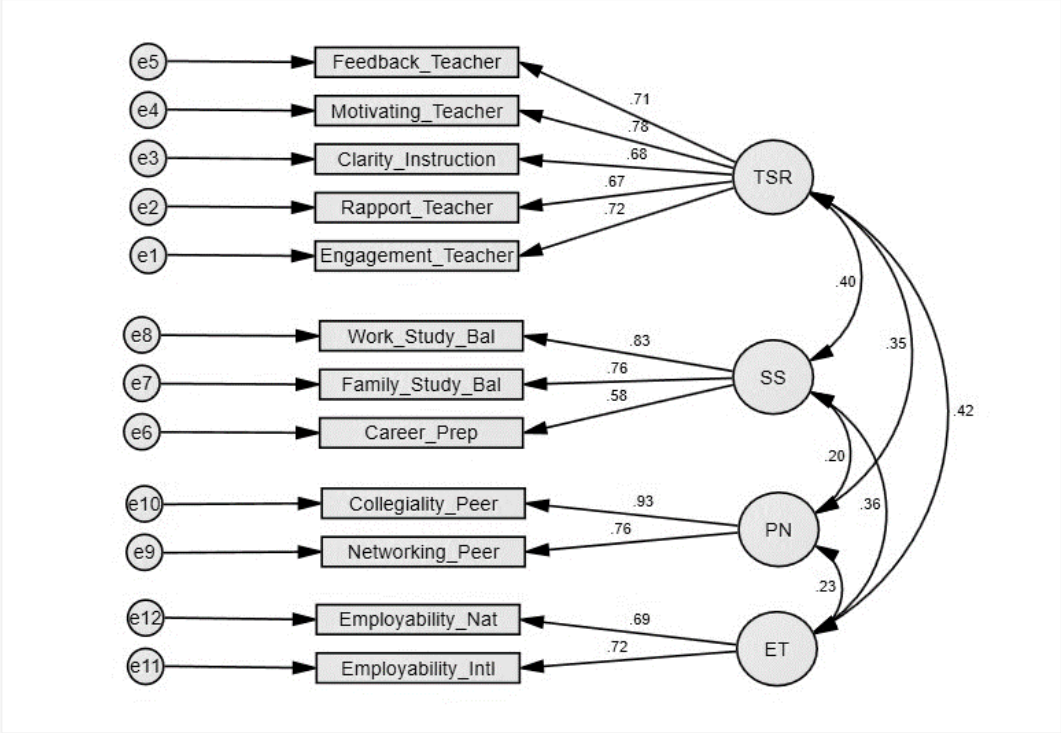

Figure 3. Measurement Models CFA 1

Note: Model fitness measures include Chi-square = 367.621, *df* = 48, p = 0.000, CMIN/DF = 7.659, RMSEA .059, CFI = .959, TLI = .943

The model fitness measures provide additional information on how well the model fits the data. A Chi-square to degrees of freedom ratio (CMIN/DF) of 7.659 is higher than the preferred maximum of 3, which might suggest a less than ideal fit. However, this ratio can be sensitive to sample size, and high values can occur with large samples. The root mean square error of approximation (RMSEA) is a measure of how well the model, with unknown but optimally chosen parameter estimates, would fit the population's covariance matrix. A value of .059 is below the .08 threshold, suggesting a reasonable fit of the model to the population. The comparative fit index (CFI) and the Tucker-Lewis index (TLI) are both comparative measures of model fit that compare the specified model to a more restrictive baseline model (typically a null model with no relationships between variables). The values of .959 for CFI and .943 for TLI are excellent, as they are both close to 1, suggesting that the hypothesised model is a good fit relative to the baseline model.

Table 4. Discriminate Validity

	PN	TSR	SS	ET
PN	**.849**			
TSR	.348	**.716**		
SS	.197	.400	**.735**	
ET	.229	.419	.365	**.702**

Source: Calculated by author based on empirical data

Table 4 presents the discriminate validity of four constructs: peer network (PN), teacher-student relationship (TSR), support services (SS), and employability trust (ET). Discriminant validity assesses the extent to which a construct is truly distinct from other constructs within the model. In Table 4, the diagonal values (.849 for PN, .716 for TSR, .735 for SS, and .702 for ET) represent the square roots of the average variance extracted (AVE) for each construct. The AVE square root should be greater than the off-diagonal elements in its row and column for satisfactory discriminant validity. The off-diagonal elements represent the correlations between constructs. For example, PN has correlations of .348, .197, and .229 with TSR, SS, and ET, respectively. Similarly, TSR correlates with SS and ET at .400 and .419. The lower correlations between different constructs (as seen in the off-diagonal elements) compared to the square roots of AVEs (diagonal elements) indicate that each construct shares more variance with its own measures than with measures of other constructs, suggesting good discriminant validity. It means each construct in the model is sufficiently distinct from the others, supporting the model's conceptual integrity

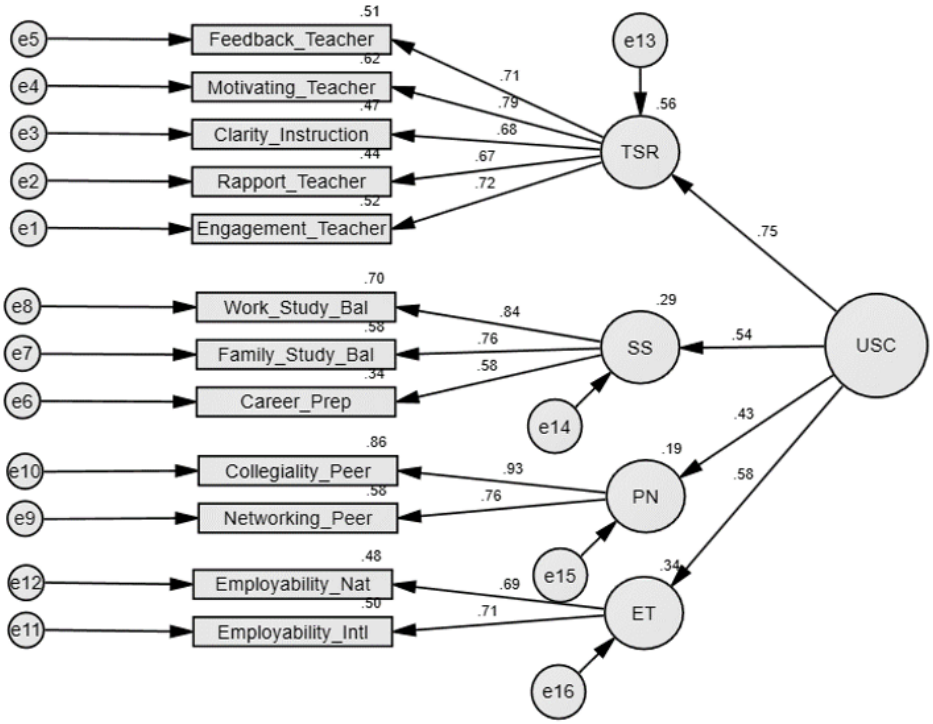

Figure 4. Measurement Models CFA 2

Note: Model fitness measures include Chi-square = 377.958, *df* = 50, p = 0.000, CMIN/DF = 7.559, RMSEA = .059., CFI = .958, TLI = .944

Discussion

The present study sought to advance the understanding of university social capital by examining its underlying components through factor analysis. The results substantiate the conceptualisation of university social capital as a multidimensional construct, encompassing teacher-student relationships (TSR), support service satisfaction (SS), peer networks (PN), and employability trust (ET).

In an educational context, TSR emerged as a significant contributor to university social capital (USC), resonating with Tinto's (1997) interactionalist theory that underscores the centrality of faculty-student interactions in fostering an inclusive academic environment. The strong path coefficient of TSR to USC underscores the importance of nurturing faculty-student rapport, clear communication, and constructive feedback, which are instrumental in cultivating an environment conducive to academic success and well-being. In fact, for TSR, the high coefficients for motivating and engaging with students suggest that faculty's ability to inspire and connect with students is vital for enhancing university social capital. Support services satisfaction also demonstrated a robust relationship with USC, reinforcing the notion that the quality of institutional support services is a fundamental component of social capital in a university setting. It aligns with the work of Pascarella and Terenzini (2005), who emphasised the role of institutional structures in enhancing student development. The SS factors with high coefficients for work-study and family-study balance support reflect the critical role that university support services play in helping working students manage their multiple responsibilities. The study's findings suggest that when students perceive a balance between academic and personal life, facilitated by the university, it contributes positively to their sense of belonging and institutional commitment. Peer networks, with their strong load on USC, illustrate the critical role of social interactions among students. The strength of the PN construct, particularly collegiality, underscores the importance of a connected student community. This finding is consistent with scholars' works (Astin, 1984; Bulotsky-Shearer et al., 2012), which posit that peer group interactions significantly affect students' academic development and satisfaction with the college experience. The strength of these networks as a facet of USC reflects the shared experiences, knowledge exchange, and emotional support among peers, which are essential to a thriving academic community. Employability trust, while displaying a lower path coefficient compared to TSR, still constitutes a meaningful aspect of USC. It lends credence to the organisational trust hypothesis (Mayer et al., 1995) that places a focus on an organisation's capacity to boost confidence. ET's high loadings for both national and international market preparedness emphasise the importance of a curriculum that is responsive to the job market's needs. The results indicate that students' perceptions of how well their education prepares them for the job market are the determinants of social capital, suggesting that curriculum relevance is a crucial consideration for higher education institutions.

The study's incorporation of these varied yet interconnected concepts into a unified model of USC provides a nuanced framework on how universities might devise strategies to augment their social capital. The present research contributes to the discussion on social capital in universities by providing empirical evidence that supports its multidimensional nature. This study on social capital within higher education institutions significantly furthers the understanding of the concept, drawing upon and expanding the seminal theories posited by Bourdieu (1986) and Coleman (1988). These scholars conceptualised social capital as the resources individuals accrue from their social networks and the embeddedness of such capital within social structures that facilitate action. This study reflects these views by identifying teacher-student relationships, support service satisfaction, and peer networks as vital sources of social capital in a university setting. Bourdieu (1986) emphasised the significance of social networks in educational settings as conduits for gaining advantages such as knowledge and support. Similarly, Coleman (1988) highlighted the creation of social capital through social structures. In line with these perspectives, the study demonstrates how the intricate web of relationships between teachers and students, the intricate networks among peers, and the quality of institutional support services collectively create a nurturing environment that enhances the social capital of working students. The study does not directly oppose Bourdieu's or Coleman's views but rather adds depth to them. While both theorists acknowledged the role of relationships and institutions in creating social capital, this study provides a detailed analysis of how various aspects of university life contribute to it. Through factor analysis, it offers a more quantitative and systematic approach to understanding the composition and impact of social capital in universities. Furthermore, the inclusion of employability trust as a component of social capital brings a new dimension to the discussion. It suggests that students' perceptions of how their education affects their future career prospects form a part of their social capital. Such an idea, in fact, extends social capital theory by linking the value of educational credentials to not only current social status but also future employability.

Conclusion

This study's exploration into the complexities of university social capital has culminated in an understanding of its dimensions. By employing confirmatory factor analysis, this academic exercise has unearthed the statistically significant influence that teacher-student relationships, support service satisfaction, peer networks, and employability trust exert on the overarching concept of university social capital. The significant variance explained by these dimensions illuminates their critical role in enriching the educational journey of students. The interplay between these facets underscores a symbiotic ecosystem within higher education institutions where each element reinforces the other, culminating in a comprehensive educational experience. In this way, this research underscores the necessity of an approach to fostering social capital within academic settings, emphasising the link between educational quality and social dynamics.

Recommendation

The study's findings support the need for specific improvements in the social connections and relationships within universities. The high factor loadings for the teacher-student relationship (TSR) construct confirm the importance of improving faculty-student engagement. The significant loadings for support services satisfaction (SS) emphasise the value of strong student support services. The substantial loadings for the peer network (PN) design highlight the advantages of promoting peer connections. Ultimately, the presence of positive loadings for employability trust (ET) emphasises the importance of schooling that prioritises professional development.

However, it is recommended to broaden the focus of forthcoming research beyond the demographic of employed students to encompass non-working students as well. By allowing for a comparative analysis, this expansion would contribute to an expanded understanding of the applicability of the validated model of university social capital among various student populations. An examination of non-working students may unveil supplementary components of social capital, potentially resulting in the development of a more sophisticated framework that accounts for the diverse experiences of the entire student population.

Limitation

While this research has provided valuable insights, it is accompanied by limitations that frame the context of its findings. The study's reliance on a specific data set, the Eurostudent VII survey, may limit the universality of its conclusions, suggesting that the intricacies of social capital can vary across different educational and cultural landscapes. The model's fit, although acceptable, indicates areas where refinement could enhance its explanatory power, hinting at the presence of additional facets of social capital yet to be explored. Moreover, the constructs themselves, particularly that of employability trust, may require a more granular approach to measurement to fully capture the depth of students' perceptions. The study's cross-sectional design also raises questions about the enduring impact of these constructs, pointing to the potential value of longitudinal research that could track the evolution of social capital over time. Such an approach would offer a dynamic view of how social capital develops and influences educational outcomes throughout the university lifecycle.

Ethics Statements

The studies involving human participants were reviewed and approved by the Estonian Business School. The participants provided their written informed consent to participate in this study.

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Conflict of Interest

The author affirms that no actual, potential, or perceived conflicts of interest exist.

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References

Aslam, R., & Khan, N. (2020). Constructive feedback and students' academic achievement: A theoretical framework. *New Horizons, 14*(2), 175-198. https://bit.ly/3y9oy3b

Astin, A. W. (1984). Student involvement: A developmental theory for higher education. *Journal of College Student Development, 40*(5), 518-529. https://t.ly/DYhWm

Baker-Doyle, K. J. (2015). No teacher is an island: How social networks shape teacher quality. *International Perspectives on Education and Society, 27*, 367-383. https://doi.org/10.1108/S1479-367920140000027005

Bean, J. P., & Bradley, R. K. (1986). Untangling the satisfaction-performance relationship for college students. *Journal of Higher Education, 57*(4), 393-412. https://doi.org/10.2307/1980994

Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin, 88*(3), 588-606. https://doi.org/10.1037/0033-2909.88.3.588

Bourdieu, P. (1986). The forms of capital. In J. G. Richardson, *Handbook of theory and research for the sociology of education* (pp. 241-258). Greenwood. https://shorturl.at/dIMTX

Bulotsky-Shearer, R. J., Dominguez, X., & Bell, E. R. (2012). Preschool classroom behavioral context and school readiness outcomes for low-income children: A multilevel examination of child- and classroom-level influences. *Journal of Educational Psychology, 104*(2), 421-438. https://doi.org/10.1037/a0026301

Byrne, B. M. (2010). *Structural equation modeling with AMOS: Basic concepts, applications, and programming*. Routledge. https://shorturl.at/zHIJ1

Carbonaro, W. J. (1998). A little help from my friend's parents: Intergenerational closure and educational outcomes. *Sociology of Education, 71*(4), 295-313. https://doi.org/10.2307/2673172

Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology, 94*, 95-120. https://doi.org/10.1086/228943

Cuppen, J., Muja, A., Hauschildt, K., Buck, D., & Daniel, A. (2021). *Eurostudent VII micro data: Data and methods report*. German Centre for Higher Education Research and Science Studies. https://shorturl.at/in024

Cuppen, J., Muja, A., Hauschildt, K., Daniel, A., Buck, D., Mandl, S., & Unger, M. (2023). *Eurostudent VII version 3.1.0. data package*. Research Data Centre for Higher Education Research and Science Studies. https://doi.org/10.21249/DZHW:es7:2.0.0

Diamantopoulos, A., & Siguaw, J. A. (2006). Formative versus reflective indicators in organizational measure development: A comparison and empirical illustration. *British Journal of Management, 17*(4), 263-282. https://doi.org/10.1111/j.1467-8551.2006.00500.x

Dimitriadis, K., von der Borch, P. Stormann, S., Meinel, F. G., Moder, S., Reincke, M., & Fischer, M. R. (2012). Characteristics of mentoring relationships formed by medical students and faculty. *Medical Education Online, 17*(1), Article 17242. https://doi.org/10.3402/meo.v17i0.17242

Field, A. (2009). *Discovering statistics using SPSS (and sex and drugs and rock 'n' roll)*. SAGE Publications Ltd. https://shorturl.at/TZ235

Fukuyama, F. (1995). *Trust: The social virtues and the creation of prosperity*. The Free Press.

Hair, J. F. (1998). *Multivariate data analysis*. Prentice Hall.

Hardin, R. (2002). *Trust and trustworthiness*. Russell Sage Foundation.

Hayden, S. C. W., & Ledwith, K. E. (2014). Career services in university external relations. *New Directions for Student Services, 2014*(148), 81-92. https://doi.org/10.1002/ss.20110

Hillage, J., & Pollard, E. (1998). *Employability: Developing a framework for policy analysis* (DfEE research report 85). The Institute of Employment Studies. https://shorturl.at/FHJM4

Hogan, R., Chamorro-Premuzic, T., & Kaiser, R. B. (2013). Employability and career success: Bridging the gap between theory and reality. *Industrial and Organizational Psychology, 6*(1), 3-16. https://doi.org/10.1111/iops.12001

Hu, L.-t., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternative. *Structural Equation Modeling: A Multidisciplinary Journal, 6*(1), 1-55. https://doi.org/10.1080/10705519909540118

Komarraju, M., Musulkin, S., & Bhattacharya, G. (2010). Role of student-faculty interactions in developing college students' academic self-concept, motivation, and achievement. *Journal of College Student Development, 51*(3), 332-342. https://doi.org/10.1353/csd.0.0137

Kuh, G. D., Kinzie, J., Buckley, J. A., Bridges, B. K., & Hayek, J. C. (2006). *What matters to student success: A review of the literature*. National Post Secondary Education Cooperative. https://t.ly/b4_M3

Lundberg, C. A. (2003). The influence of time-limitations, faculty, and peer relationships on adult student learning: A causal model. *The Journal of Higher Education, 74*(6), 665-688. https://doi.org/10.1353/jhe.2003.0045

Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An integrative model of organizational trust. *The Academy of Management Review, 20*(3), 709-734. https://doi.org/10.2307/258792

McAllister, D. J. (1995). Affect- and cognition-based trust as foundations for interpersonal cooperation in organizations. *Academy of Management Journal, 38*(1), 24-59. https://nus.edu/4a1qvfl

Muller, C. (2001). The role of caring in the teacher-student relationship for at-risk students. *Sociological Inquiry, 71*(2), 241-255. https://doi.org/10.1111/j.1475-682X.2001.tb01110.x

Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students: A third decade of research* (Vol. 2). Jossey-Bass.

Perna, L. W., & Titus, M. A. (2005). The relationship between parental involvement as social capital and college enrollment: An examination of racial/ethnic group differences. *The Journal of Higher Education, 76*(5), 485-518. https://doi.org/10.1353/jhe.2005.0036

Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community*. ACM. https://doi.org/10.1145/358916.361990

Safiih, M., & Azreen, N. (2016). Confirmatory factor analysis approach: A case study of mathematics students' achievement in TIMSS. *Malaysian Journal of Mathematical Sciences, 10*, 41-51. https://t.ly/SgYGf

Stanton-Salazar, R. D. (2011). A social capital framework for the study of institutional agents and their role in the empowerment of low-status students and youth. *Youth and Society, 43*(3), 1066-1109. https://doi.org/10.1177/0044118X10382877

Thomas, J. W. (2000). *A review of research on project-based learning*. Autodesk Foundation. https://t.ly/34d6o

Tinto, V. (1994). *Leaving college: Rethinking the causes and cures of student attrition*. University of Chicago Press. https://doi.org/10.7208/chicago/9780226922461.001.0001

Tinto, V. (1997). Classrooms as communities: Exploring the educational character of student persistence. *The Journal of Higher Education, 68*(6), 599-623. https://doi.org/10.1080/00221546.1997.11779003

Tomlinson, M. (2008). The degree is not enough': Students' perceptions of the role of higher education credentials for graduate work and employability. *British Journal of Sociology of Education, 29*(1), 49-61. https://doi.org/10.1080/01425690701737457

Toyon, M. A. S. (2023a). Examining the relationships between academic adaptation and life-domain issues among working university students in Estonia. *International Journal of Learning, Teaching and Educational Research, 22*(4), 58-72. https://doi.org/10.26803/ijlter.22.4.4

Toyon, M. A. S. (2023b). Student employees' dropout intentions: Work excuse and university social capital as source and solution. *European Journal of Educational Research, 12*(3), 1329-1348. https://doi.org/10.12973/eu-jer.12.3.1329

Toyon, M. A. S. (2024). Understanding the maintenance of students' trust in universities from Estonian context. *Management and Labour Studies, 49(*2), 187-207. https://doi.org/10.1177/0258042X231191858

Tucker, L. R., & Lewis, C. (1973). A reliability coefficient for maximum likelihood factor analysis. *Psychometrika, 38*, 1-10. https://doi.org/10.1007/BF02291170

Yorke, M. (2006). *Employability in higher education: What it is, what it is not*. The Higher Education Academy. https://shorturl.at/sCN09

Zhao, C.-M., & Kuh, G. D. (2004). Adding value: Learning communities and student engagement. *Research in Higher Education, 45*, 115-138. https://doi.org/10.1023/B:RIHE.0000015692.88534.de

Zimmerman, B. J. (2000). Attaining self-regulation: A social cognitive perspective. In M. Boekaerts, P. R. Pintrich, & M. Zeidner, *Handbook of self-regulation* (pp. 13-39). Academic Press. https://doi.org/10.1016/B978-012109890-2/50031-7