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Operational Employability Model: A Case Study of Graduate Employability in Croatia

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Abstract

Background: The employability of graduates has become a central topic in higher education policy and research. However, the construct still needs to be clarified. **Objectives:** The objective of this paper is to demonstrate the applicability of an operational employability model in analysing the transition from study to work on a sample of graduates in Croatia as part of a larger Eurograduate pilot survey. The model has been rooted in the theories of human capital, cultural and social capital and constructivist educational theory. **Methods/Approach:** Factor analysis was applied to reduce the number of measured variables into factor scores that were used as predictors in multiple regression analysis. Cox regression, logistic regression and linear regression were applied to test the employability model. **Results:** The results showed that cultural capital, human capital, and bridging social capital, as well as high-impact practises during studies, such as volunteering and internships, have a positive impact on the likelihood of finding employment in less time after graduation in an occupation that vertically matches the qualification, and in a job with a higher monthly income. **Conclusions:** The results have shown that cultural capital, human capital, and bridging social capital influence the probability of finding employment in a job that matches the level of qualification in a shorter time after graduation and in a job with a higher monthly income. These findings have practical implications for educators, policymakers, and employers, providing insights into the factors that can enhance graduate employability.

Keywords: employability operational model; graduate employability; human capital; social capital; cultural capital; constructivist theory

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Introduction

Recent studies have highlighted significant trends in education and employment outcomes across Europe, particularly concerning the impact of education length on youth employment. Krpan et al. (2023) utilised a hierarchical clustering approach to examine how variations in the duration of education correlate with employment rates among European youth, revealing distinct patterns that suggest longer educational periods might lead to better employment prospects. Additionally, the role of cultural and international dimensions in shaping innovation and entrepreneurship within higher education institutions has been explored by Grèzes (2021), who proposed a typology of learning universities that integrate these aspects to foster entrepreneurial mindsets. Moreover, the shift to e-learning during the COVID-19 pandemic, as analysed by Pejić Bach et al. (2023), underscored how different countries' development levels and pandemic responses significantly influenced the effectiveness of online education, further impacting educational and employment outcomes.

In recent years, there has been considerable concern about the effectiveness of institutional, national, and supranational policies and practices in equipping higher education students for the labour market. This has led to an increased interest in employability, which is usually understood as "the capability to obtain and maintain a job and ensure the supply of competence in the labour market" (Siivonen et al., 2023, p.1).

Various employability models and frameworks have emerged with "narrow", "broad", or "holistic" theoretical foundations or with a specific focus (Eimer & Bohndick, 2023, p. 3). They reflect different perspectives on employability that are taken by a plurality of stakeholders, each with a "different approach and scope serving to highlight different issues and domains of action in which they work."(Williams et al., 2016, p. 3).

One of the first frameworks for analysing the concept of employability was developed by Hillage and Pollard (1998, p.2), who argued that employability depends on "the knowledge, skills and attitudes they possess, the way they use those assets and present them to employers and the context […] within which they seek work. Three of the four components in their framework focussed on graduates' skills and knowledge and contain only one external factor that influences employability.

McQuaid and Lindsay (2005) broadened the analytical framework of employability by placing greater emphasis on the external circumstances that influence employability, such as education and training, work experience, personal qualities and labour market conditions. They defined employability as a set of individual and organisational attributes that enable individuals to secure and maintain employment and to move within and between jobs.

Another example of the balancing of labour supply and demand through sets of micro and macro factors on both sides is the Kleinman and West model (1998). Micro factors on the supply side include personal and social skills, occupational skills and qualifications, and key competencies such as literacy and numeracy. In contrast, macro factors include the availability and accessibility of transport and childcare, as well as the presence of various forms of discrimination based on age, race, and so on. On the demand side, micro factors include the number of jobs in the local economy, the type of employers, and formal and informal employment procedures. Macro factors include labour market demand at the economic level, macroeconomic policies, and confidence in the economic sector. Although the model attempts to consider and balance factors on the supply and demand side when looking at employability and to point out the importance of the context of current public policy, the situation in education, the labour market and the economy, it is still built on a one-

dimensional interpretation of employability as a function of the match between supply on the education system side and demand on the labour market.

In an effort to consider internal and external factors of employability, Thijssen et al. (2008) have proposed a model in which they represent the construct of employability through three conceptual components that describe employability like concentric circles from the narrowest to the broadest definition. The first component, in the narrowest sense, refers to a person's ability to work at a particular job. The second component refers to the possession of various overarching skills that enable the individual to be employed in different jobs, and the third includes external, contextual factors such as personal and workplace circumstances that influence the individual's chances of success in the labour market.

More recently, Tomlinson (2017) has outlined a graduate capital model that encompasses a range of human, social, cultural, identity and psycho-social dimensions acquired through graduates' formal and informal experiences. The model demonstrates how the components of the different capitals overlap and relate to graduate employment by exploring how these forms might be developed in and around higher education. Based on the Graduate Capital Model, Tomlinson (Tomlinson et al., 2022) developed a psychometric instrument called the "Graduate Capital Scale" that seeks to operationalise this capital and help students to self-assess their confidence in transitioning to the labour market.

From the overview of the development of employability analytical frameworks and the employability construct, it is clear that the early models largely focus on the characteristics of the individual, while more recent approaches emphasise the interaction between different interrelated factors and different forms of capital, such as human capital, social capital, cultural capital, identity capital and psychological capital (Nghia et al., 2020; Pham & Jackson, 2020), in addition to health capital, scholastic capital, market-value capital, career identity capital, and economic capital (Donald et al., 2024a) as well as to resources that influence graduates' prospects in the labour market (Nghia et al., 2020) and contextual determinants such as the local labour market opportunities and life circumstances (Forrier et al., 2018). The development of employability models that incorporate internal and external factors has enabled a "much broader thematic framework with a clearer focus on the individual and macro-economic dimensions of employability and a shift in focus from hard-to-employ groups to all labour contingents" (Rimac & Ogresta, 2018, p.14).

However, researchers agree that more research is needed to capture the dynamic nature of employability development (Akkermans et al., 2024). The construct of employability is still vague because employability models and analytical frameworks often need a solid theoretical basis, tools and the availability of comparable data to test them systematically and across countries. One step forward in systematic data collection is the Eurograduate survey, which was initially piloted in 2018 with data sets from eight EU Member States (Meng et al., 2020) and then rolled out to seventeen EU Member States in 2022 (results yet to be available). The availability of data collected through the Eurograduate pilot survey enabled a more comprehensive approach to analysing the employability factors of graduates. The operational model presented in this paper has been developed based on the Eurograduate pilot survey (Rimac, 2020) , and it focuses on early career outcomes of employed higher education graduates.

Three research propositions establish the employability predictors associated with three forms of capital and the learning environment during higher education.

- RP1: Human, cultural, and social capital and the activating learning environment during higher education positively influence finding employment in an occupation that matches the level of the acquired qualification.

- RP2: Human, cultural, and social capital and the activating learning environment during higher education positively influence monthly incomes.
- RP3: Human, cultural and social capital and the activating learning environment during higher education positively influence finding employment in a shorter time after obtaining the qualification.

The objective of this paper is to elaborate on an operational employability model based on the theories of human capital, cultural and social capital, as well as on the constructivist educational theory and tested on a set of data collected with the pilot Eurograduate survey. The operational employability model presented in this paper is based on the model used to analyse the employability of graduates from higher education institutions in Croatia (Tecilazić, 2023).

The first part of this paper, after the introduction, describes the theoretical framework, and the second part details the design of the operational employability model based on the given theoretical framework and adapts it to the Eurograduate instrument. The third part presents the methodology used to test the operational employability model on a sample from the Eurograduate pilot survey, and the fourth part contains the results of the analysis and the discussion. The conclusion summarises the relevance of the operational employability model and identifies opportunities for its further application as well as its limitations.

Theoretical Framework

The broad theoretical framework for understanding employability used in this study includes the economic theory of human capital developed in the 1960s by the economists Gary Becker and Theodore Schultz (Becker, 1962; Schultz, 1961), the theories of cultural and social capital advanced by the French sociologist Pierre Bourdieu (Bourdieu, 2018, 1986; Bourdieu & Passeron, 1990), and constructivist theories of education (Davis et al., 1993; Phillips, 1995). Drawing on the theories from multiple disciplines, this theoretical framework offers an interdisciplinary basis for understanding the complex employability construct.

Human capital is generally and broadly defined as the skills and competencies of a person. De la Fuente and Ciccone describe it as "knowledge and skills embodied in people and accumulated through schooling, training and experience that are useful in the production of goods, services and further knowledge" (Fuente & Ciccone, 2003, p.10). Human capital in the mode of acquired knowledge is gained through formal high-level education and training and empowers students in the labour market (Tomlinson, 2017). Human capital theory emphasises the importance of education and training for the acquisition of skills and knowledge and, thus, for the improvement of an individual's productive capacity (Becker, 1962). The research findings support the basic principles of human capital theory, according to which investment in education and training helps to improve individual and social outcomes, including the employability of individuals (Babić, 2019).

According to the principles of human capital theory, individuals are responsible for the decisions on investment in their education as well as for their educational and career outcomes. However, critics of human capital theory argue that its neoliberal ideology and the neoclassical economic principles that underpin human capital theory narrow education to its economic purpose and focus on technical skills and knowledge necessary for finding employment (Edeji, 2024). In such a way, human capital theory as a profit-based neoliberal ideology "neglects the influence of social structure on educational inequality, which greatly contributes to educational inequity" (MacKenzie & Chiang, 2023, p. 8).

Moreover, to focus only on a person's skills and knowledge in explaining career outcomes would mean ignoring the broader social context that plays an important role in creating educational and training opportunities for individuals (Badescu et al., 2011; Baranović et al., 2015; Black & Smith, 2006; Coleman, 1988; Ortiz-Gervasi, 2023; Zhang, 2005). The broader social context that determines a person's opportunities (Loury, 1977, 1981) includes an individual's cultural and social capital which determines their educational choices (Becker & Hecken, 2009; Boudon, 1974; Erikson et al., 2005; Puzić & Košutić, 2015; Van De Werfhorst et al., 2003) thereby influencing different evaluation of the costs, benefits and risks associated with educational choices (Boudon, 1974), as well as academic achievement (Bourdieu, 2018; Bourdieu & Passeron, 1990) and facilitating access to social resources and employment strategies that are critical to securing quality employment (Breen & Goldthorpe, 1997; Collins, 1979; Halsey et al., 1980).

The theory of cultural capital states that a person's cultural knowledge, family background and behaviour can have a significant impact on their life chances and influence their social mobility and economic success. Cultural capital is a form of knowledge acquired through socialisation and education that can be institutionalised in the form of parents' educational qualifications and used to gain access to certain social and economic opportunities (Bourdieu, 1986), who argued that cultural capital is often unequally distributed, with members of higher social classes having greater access to it than members of lower social classes. This inequality often manifests itself in early educational choices, later academic performance and later career paths, whereby educational institutions contribute to the reproduction of social inequalities.

However, the educational experience and its formative potential can significantly alter educational and professional outcomes, as different educational practices and learning experiences have an impact on the development of human potential. According to constructivist educational theory, people construct their knowledge by building on their previous knowledge and experiences, developing their overall understanding of the world and matching their new ideas and experiences against existing knowledge (Carlile & Jordan, 2005).

The constructivist learning paradigm emphasises that teachers should actively engage students in learning and create a learning environment (Barr & Tagg, 1995) and is the basic theory behind the student-centred learning approach (Matthews, 2020). Empirical research supports the constructivist approach and proves that students' performance is improved when supported by activating learning environment (Ahmad et al., 2015) where teachers' intentions are focused on developing, changing or transforming students' conceptions instead of instructing them or conveying the content (Prosser et al., 2005).

Such transformative learning brings about a change in the "assumptions through which we understand our experiences, and that selectively shape and delimit our expectations, perceptions, cognition, and feelings" (Mezirow & Taylor, 2009, p.20). In line with constructivist and transformative theories, knowledge and skills are more likely to be developed through student engagement and activating learning practises such as teamwork (Li & Guo, 2015), project-based learning and flipped classrooms (Schell & Mazur, 2015), research-based learning (Børte et al., 2023), problem-based learning, critical thinking, deep learning, case studies and research-based learning approaches.

Research suggests that graduates are more satisfied with study programmes designed in a more problem-based learning and teaching manner and would choose the same study programme at the same institution rather than graduates who studied at programmes with a more traditional lecture-based approach applied to a greater

extent (Tecilazić, 2022). Therefore, some researchers argue that shifting from traditional lecture-based teaching to more student-centred, interdisciplinary learning supported by information and communication technologies and international collaboration is needed (Misseyanni et al., 2018).

In addition to these activating pedagogical approaches, research shows that specific high-impact practises integrated into the curriculum or extracurricular activities such as study abroad (Adle, 2021), work-based learning and internships (Jackson et al., 2024; Rowe et al., 2023) paid or unpaid student jobs, volunteering, student research projects and community engagement activities have a proven impact on the employability of graduates (Wolniak & Engberg, 2019). Therefore, the role of higher education in supporting students to develop their employability skills, which is necessary to facilitate their transition to the labour market, is pivotal (Van der Baan et al., 2024).

Finally, the choice of employment strategies of graduates is influenced by the social capital of the individual. According to Bourdieu, social capital is a resource made up of family and personal social connections and relationships. It is defined as "the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalised relationships of mutual acquaintance and recognition" (Bourdieu, 1986, p.26). Social networks are built on trust, which facilitates cooperation and the exchange of valuable information and resources (Putnam, 1995). They can, therefore, play a role in creating opportunities for educational and economic advancement (Coleman, 1988). Social capital, which manifests itself in the form of social networks, connections and relationships, can be used to gain access to valuable resources such as information and social support (Lin, 1999) and can also help to find better-paying jobs, thereby improving individual and societal outcomes (Granovetter, 1995).

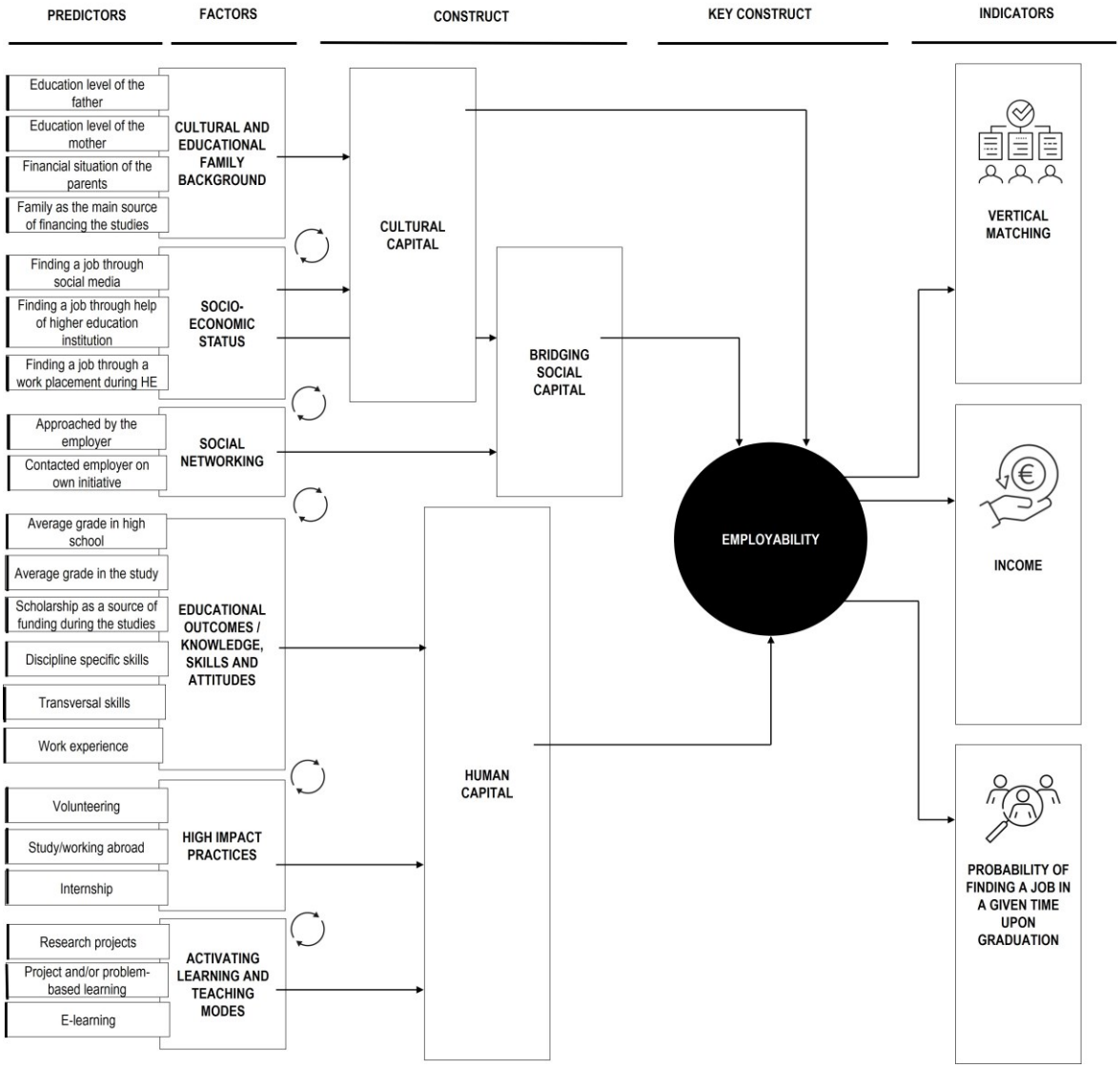
The theories of human, cultural and social capital supported by the constructivist theory formed the theoretical framework for the development of the operational employability model, which encompasses various factors that are assumed to influence the employability of higher education graduates. The construction of this operational employability model was built on previous research and a review of existing analytical frameworks that reveal its complexity and multidimensionality and that provide indicators for measuring employability. The model was finally adapted to the Eurograduate survey and then tested on a sample of graduates from Croatian higher education institutions to measure their early career outcomes.

Operational Employability Model

Various models and frameworks have been developed to analyse employability, and discussions have emerged about the factors influencing the transition of graduates into the labour market (Nghia et al., 2022). These employability models and studies usually aim to underpin the institutional developments and practise of higher education institutions, curricular or extra-curricular activities to develop student's employability skills (Jackson et al., 2024), or they tend to support national or supranational employment and education policies looking at how higher education institutions effectively prepare students for the labour market (Bennett, 2019). Furthermore, these models often emphasise the factors that influence employability but place less emphasis on how employability can be measured due to the vagueness of the term. Finally, there are concerns that researchers work in their silos and that there is a lack of terminological consistency, so different terms are used for the same concepts (Donald et al., 2024b).

Based on the given theoretical framework and building on the existing models and analytical frameworks on employability, the operational employability model presented in this paper (Figure 1) includes cultural, social and human capital as predictors of employability, which is measured by three indicators of employability of employed individuals: vertical match of qualification to occupation, probability of finding a job within a short time after graduation, and income level. This operational model of employability is grounded in a robust theoretical foundation and aims to enhance understanding of the predictors of employability, as measured by a defined set of indicators. It originated from a pilot survey conducted among graduates in eight European countries in 2018, which was repeated in seventeen European countries in 2022. The use of a standardised questionnaire and comparable data sets ensures consistency across countries and over time. This model specifically targets initial employability and early career outcomes, analysing the transition from higher education to the labour market and distinguishing it from other employability models.

Figure 1
Operational Employability Model



Source: Author's work based on Tecilazić (2023)

Methodology

The operational employability model was empirically tested, and the analysis was conducted on a sample of Bachelor-level and Master-level graduates from university and non-university types of higher education institutions in Croatia who graduated in the academic year 2016/2017 and participated in the Eurograduate pilot survey from October 2018 to February 2019. Data were centrally collected and anonymised by the Deutsche Zentrum für Hochschul und Wissenschaftsforschung, which made the data available in accordance with the GDPR.

The dataset was weighted based on population data and contained the sample of the total number of 4115 graduates grouped according to sex (59,3% female; 40,7% male), institution type (69,4% university; 30,6% non-university), qualification level (53,1% Bachelor; 46,9% Master); education fields (5,8% Education; 9,1% Arts and Humanities; 7,0% Social Sciences, Journalism and Information; 29,1% Business, Administration and Law; 5,0% Natural Sciences, Mathematics and Statistics; 5,7% Information and Communication Technologies; 16,6% Engineering, Manufacturing and Construction; 4,4% Agriculture, Forestry, Fisheries and Veterinary; 10,2% Health and Welfare; 7,1% Services).

In order to test the research propositions and establish predictors of employability, the operational employability model was applied. Factor analysis was applied to reduce the number of measured variables indicative of the same constructs to create factor scores, which were used in multiple regression analysis as predictors. Logistic regression was applied to test predictors of vertical matching of qualification with occupation. The Cox regression was used to identify factors influencing the achievement of the first employment in a shorter time after graduation. Linear regression analysis was employed to establish factors that determine monthly income. The most significant and relevant results are presented and discussed in the following part of this paper.

Results

Factor analysis

To develop an operational model of employability, three-factor analyses were first conducted to reduce the number of measured variables indicating the same constructs and to form factor scores, which were later used as predictors in a multiple regression analysis. The first-factor analysis included variables indicative of individual attributes and family socio-cultural background (Table 1).

It resulted in three factors, two of which were included in the operational model of employability: sociocultural background and educational outcomes (knowledge, skills, and attitudes). The second-factor analysis referred to the learning and teaching modes predominantly used in the study programme and resulted in two factors, one indicating activating learning and teaching practises and the other passive learning and teaching modes (Table 2). The third-factor analysis included high-impact practices experienced by the graduates during their study programme (Table 3).

Table 1
Individual Attributes and Family Socio-Cultural Background (Factor Scores)

Measured variables	Socio-cultural background	Educational outcomes	Additional efforts
Highest education level of the father"	**0.772**	-0.012	0.032
Highest education level of the mother	**0.795**	0.048	-0.019
Family as the main source of financing the studies	**0.367**	0.316	-0.254
Financial situation of the parents	**0.579**	-0.114	0.012
Scholarship as a source of financing the studies	-0.183	**0.700**	-0.072
Average final examination grade in secondary education	0.065	**0.664**	0.006
Average final grade in higher education	0.023	**0.609**	0.328
Extra work above what was required to pass exams	-0.019	-0.019	**0.873**
Striving for the highest possible marks	0.010	0.118	**0.872**

Source: Author's work based on Tecilazić (2023)

Table 2
Learning and Teaching Modes (Factor Scores)

Measured variables	Passive learning and teaching modes	Activating learning and teaching modes
Lectures	**0.836**	-0.323
Group assignments	**0.598**	0.540
Written assignments	**0.793**	-0.013
Oral presentations by students	**0.802**	0.140
Self-study	**0.706**	-0.433
Participation in research projects	-0.079	**0.847**
Internship as part of or outside the curriculum	-0.112	**0.589**
Project and/or problem-based learning	0.286	**0.722**
E-learning	-0.277	**0.653**

Source: Author's work based on Tecilazić (2023)

Table 3
High Impact Practises (Factor Scores)

Measured variables	Study/working abroad	Volunteering	Work experience	Internship
Study abroad	**0.774**	0.139	0.032	-0.191
Mobility period during studies	**0.980**	0.056	0.034	0.006
Internship as part of or outside the curriculum (abroad)	**0.734**	-0.056	0.017	0.233
Voluntary activity related to higher education institution	0.068	**0.741**	0.029	0.109
Voluntary activity not related to higher education institution.	0.017	**0.737**	0.088	-0.051
Work experience in the country of HEI not related to study programme	-0.050	0.279	**0.663**	-0.004
Work experience abroad not related to study programme.	0.168	0.063	**0.584**	-0.059
Work experience before studying	-0.108	-0.372	**0.599**	0.087
Internship as part of or outside the curriculum (home)	0.030	0.054	-0.015	**0.954**

Source: Author's work based on Tecilazić (2023)

The measured variables and corresponding factors are included in the operational employability model, which was developed and first tested on a set of data comprising individuals graduating in Croatia in 2016/2017 (Tecilazić, 2023), presented in this study with some modifications.

Cultural capital is described by the constructs of cultural and educational family background and socioeconomic status, operationalised by two groups of measured variables: "the education level of the father", "the education level of the mother", as well as by "the financial situation of the parents during the studies" and "the family as the main source of financing the studies". Social capital, which is derived from the socioeconomic status of the family, is primarily measured using social networks and resources used in strategies applied to find a first job. In this context, we distinguished between two types of social capital, namely "bonding social capital", which refers to a type of social capital that is created within a community, and "bridging social capital", which refers to the creation of connections between different social groups (Putnam, 2000). Bonding social capital in this paper refers to the search for a job through friends, family, and acquaintances. It is therefore linked to family social capital, while bridging social capital includes the search for a first job "through social media", "through the help of higher education institution", or through a "work placement during higher education". In addition, bridging social capital is also characterised by the individual "being "approached by the employer" and "contacting the employer by individual's initiative" as two successful employment strategies. In the revised operational employability model, only bridging social capital is explicitly included as a predictor of employability.

In the revised operational employability model, human capital is described by three groups of variables that are intertwined and related to other constructs. First, educational outcomes (knowledge, skills and attitudes) include the "average final examination grade in secondary education", the "average final grade in higher education", and the "scholarship as a source of financing the studies", as well as "discipline-specific skills" and "transversal skills", both needed for graduates' employment outcomes (Nghia et al., 2020). These elements are related to the personal attributes of the individual's human capital developed through education and training. Specific learning experiences in higher education were measured by the predominant use of certain learning and teaching modes during studies such as "participation in research projects", "project and/or problem-based learning", "e-learning" and by specific high-impact practises such as "internship or study-related work placement", "study/working abroad" and "volunteering". These practises, when supported by higher education institutions, can therefore be analysed as factors in the development of human capital and thus as possible predictors of employability.

The revised model emphasises the interdependence between different groups of predictors. For example, socioeconomic status as a construct is intertwined with cultural and educational family background and social networks, which is why their overlap is visible in the operational model of employability, as is the overlap of social networks with an individual's characteristics.

On the output side of the operational employability model, three indicators were defined to measure the employability of employed individuals in the early career phase: employment in an occupation corresponding to the level of qualification acquired, the time elapsed from qualifying first employment, and the level of income.

Firstly, the vertical match between the qualification and occupation shows that the labour market values the skills and knowledge acquired during higher education. This criterion of employability corresponds to the basic concepts of human capital theory, which establishes a link between investment in the acquisition of knowledge and skills

needed to perform more complex occupations where the expected tangible and intangible returns are greater. Employment in a profession that corresponds to the level of the qualification acquired is considered to be an important indicator of the employability of people in the early career phase. On the other hand, horizontally matched employment, which describes employment in the same or a field to the field of study, is more controversial, as successful employment is also possible outside the field of study, which becomes even more evident with the increase in interdisciplinarity, multidisciplinary and interdisciplinarity, as well as with the increase in the importance of transversal skills. For this reason, this indicator was ultimately removed from the revised model.

Secondly, in empirical research analysing employment prospects after graduation, the probability of finding a job in a shorter period is usually used as a measure of employability. However, this indicator has its limitations, as graduates may delay entering the labour market for various reasons, which does not necessarily make them less employable. Therefore, these limitations must be taken into account when interpreting the results.

Thirdly, the level of earnings as a criterion for measuring employment success derives directly from human capital theory. It is also an indicator of the value of individual skills and competencies used at work and, thus, an indicator of employability.

The operational employability model was developed to analyse the determinants of employability of graduates at an early stage of their careers using the Eurograduate survey as a measurement instrument. The following part shows the results of an analysis conducted on a limited set of data to test the operational employability model.

Predictors of vertical (mis)match between qualification and occupation

The analyses have shown that, under certain circumstances, cultural capital, human capital, and bridging social capital influence the probability of finding employment in a job that matches the level of qualification in a shorter time after graduation, with a higher monthly income.

The logistic regression analysis determined the factors for employment in an occupation corresponding to the level of qualification achieved (Table 4). The results showed that the probability of finding suitable employment in an occupation corresponding to the qualification level is higher for graduates with a university bachelor's degree or a university master's degree if they have greater family cultural capital.

Human capital plays an important role for graduates with a university master's degree, and social capital is more important for graduates with a non-university bachelor's degree. More specifically, the results of the analysis show that controlling for other variables, university graduates with a bachelor's degree and higher cultural capital are 70.3 % more likely to find employment matching their level of qualification (Exp(B)=1.703; S.E.=0.26) than graduates with lower cultural capital from the same group. This is in line with the findings of the Eurograduate report for Croatia, according to which the majority of university graduates with a bachelor's degree continue their studies because their qualifications are not recognised in the labour market (Rimac, 2020).

However, those with higher cultural capital can more easily compensate for the lack of skills and knowledge acquired through their education. Similarly, university graduates with a Master's degree and higher cultural capital are 36.6 % more likely to find employment corresponding to their level of qualification (Exp(B)=1.366; S.E.=0.084)

than those with lower cultural capital. These results confirm the main propositions of cultural capital theory, which states that academic and non-academic outcomes depend on the knowledge passed down through family members. The fact that these results are specifically relevant to two groups of university graduates also means that even when access to higher education is opened up to students from lower socio-economic backgrounds, social differences remain. These graduates have more difficulty in finding a job where they can utilise the skills and knowledge they have acquired through higher education.

Table 4
Predictors of vertical (mis)match between qualification and occupation

	University Bachelor		University Master		Non-university Bachelor	
	S.E.	Exp(B)	S.E.	Exp(B)	S.E.	Exp(B)
Education	1.493	5.349	0.457	3.404*	1.098	11.844*
Arts and Humanities	0.967	0.742	0.439	2.184	-	-
Social Sciences. Journalism. Information	0.788	0.363	0.433	1.682	0.923	9.346*
Business. Administration. Law	0.672	0.136*	0.368	1.947	0.434	3.232*
Natural Sciences. Mathematics. Statistics	1.037	0.152	0.509	2.939*	-	-
Information and Communication Technologies	1.347	3.549	0.57	4.085*	0.551	5.943*
Engineering. Manufacturing and Construction	0.884	0.322	0.391	1.318	0.491	4.283*
Agriculture. Forestry. Fisheries. Veterinary	-	-	0.571	0.834	0.731	1.01
Health and Welfare	1.23	1.027	0.433	4.026*	0.513	9.177*
Cultural capital	0.26	1.703*	0.084*	1.366	0.135	1.17
Human capital	0.22	1.307	0.092*	1.426	0.156	1.261
Passive learning and teaching modes	0.22	0.646*	0.082	0.939	0.118	0.78*
Activating learning and teaching modes	0.215	0.973	0.076	1.039	0.133	0.711*
Study abroad	0.219	1.048	0.076	1.001	0.193	0.635*
Volunteering	0.223	1.251	0.08	0.982	0.141	1.127
Work experience	0.207	0.945	0.081	1.221*	0.119	0.971
Internship	0.216	1.277	0.083	0.884	0.151	0.87
Employment through electronic media	0.48	0.769	0.193	0.759	0.309	0.727
Employment through Employment Agency	0.831	1.645	0.194	0.836	0.338	1.063
Employment - contacted employer by own initiative	-	-	0.338	1.064	0.315	1.705*
Employment through social networks	0.501	0.914	0.191	1.39	-	-
Employment - approached by employer	0.712	2.005	0.271	2.51*	0.336	1.309
Employment through internship	-	-	0.367	1.446	-	-
Employment through family. friends. acquaintances	0.457	0.791	0.196	0.455*	0.283	1.155
Employment through help of HEI	-	-	0.362	1.336	-	-
Employment through work placement during HE	-	-	0.448	0.898	-	-
Constant	**0.797**	**3.987**	**0.415**	**0.868**	**0.531**	**0.631**

*Note: *p<0,05*
Source: Author's work

Human capital manifested through better education and academic outcomes contributes to finding employment matching the level of qualification, in the case of graduates with a university Master's degree. Those graduates have 42.6% (Exp(B)=1.426; S.E.=0.092) higher odds of finding a suitable qualification level-matching employment if they have a one-factor score of higher human capital.

Non-university graduates with Bachelor's degrees who have used their social capital and applied strategies to bridge social gaps when seeking their first job have a higher probability of finding employment that matches the level of their qualification. Those Bachelor-level graduates from professional higher education institutions who found their employment by contacting the employer by their initiative

have 70.5% higher odds (Exp(B)=1.705; S.E.=0.315) of finding employment at the same level as their qualification than those graduates from the same group who used other job seeking strategies.

The analysis's results regarding the modes of learning and teaching predominantly used during the degree programme showed that both passive and activating modes of learning and teaching have a negative influence on the search for a job that corresponds vertically to the qualification. These controversial results point to shortcomings in the Eurograduate pilot questionnaire, in which respondents were asked to rate the frequency of use of each mode of learning and teaching separately so that the different modes are not measured in relation to each other.

Predictors of finding employment with higher income

The results of the analysis also showed that graduates with a bachelor's degree from a university who have found employment through contacts within their social community or who have spent time studying abroad are more likely to be employed in jobs below their qualification level. The former supports social capital theory, which states that bonding social capital can be a barrier to better career outcomes, particularly for those from less privileged social backgrounds. The latter can be explained by the fact that those who have spent time studying abroad, compared to those who have stayed at their home university, need more social capital to build their social networks and use them later to find suitable employment (Table 5).

These results largely support the first research proposition (RP1), which is that human, cultural, and social capital, and the activating learning environment during higher education have a positive influence on finding employment in an occupation that corresponds to the level of qualification acquired.

The second research proposition (RP2), which concerns the predictors of finding a job with a higher income, was largely confirmed.

When analysing the predictors of a higher monthly income, it was initially established that there are no major differences in income between the groups of graduates analysed, which is why it was difficult to identify factors that influence higher incomes. However, it can be seen that holders of degrees in the fields of "information and communication technologies" and "engineering, manufacturing and construction" stand out positively here, as they are more likely to be employed in better-paid jobs than others.

When looking at the different capitals as possible predictors of employability, the analysis showed that among graduates with a professional master's degree, those with higher cultural capital work in occupations with higher earnings, such that they are likely to have an average monthly income that is EUR 174 higher (B=174.051; S.E.=51.024) when their cultural capital increases by one-factor score.

Social capital, which manifests itself in the social networks that an individual activates in search of employment in order to bridge social gaps (bridging social capital), increases the probability of finding employment with a higher income. University graduates with a Master's degree who found their first job after graduation with the help of their social networks had an average monthly income that was EUR 489 higher (B=488.582; S.E.=157.008) than those who used other job search strategies. On the other hand, graduates who did not activate their other social networks but found employment through the employment agency or their families, friends and acquaintances were more likely to have found employment with a lower income.

Table 5
Predictors of finding employment with higher income

	University Bachelor		University Master		Non-university Bachelor		Non-university Master	
	B	S.E.	B	S.E.	B	S.E.	B	S.E.
Education	-634.238	378.247	-318.067	215.681	-93.429	315.982		
Arts and Humanities	-471.735	377.502	-350.737	217.003	-458.387	597.933		
Social Sciences, Journalism, Information	-786.878*	310.501	-196.521	221.292	-9.294	315.04		
Business, Administration, Law	-704.494*	248.62	-100.993	190.103	205	162.312	-46.734	211.528
Natural Sciences, Mathematics, Statistics	-730.624	448.193	-174.432	235.777				
ICT	-222.955	356.351	701.42*	241.484	277.623	206.423	204.735	262.289
Engineering, Manufacturing and Construction	-589.546	350.454	181.022	200.601	676.195*	175.462	168.754	265.973
Agriculture, Forestry, Fisheries, Veterinary	-444.097	535.061	-303.795	279.884	133.896	270.393	-643.504	367.114
Health and Welfare	-516.369	470.195	172.708	206.354	208.956	178.773	-246.079	304.037
Cultural capital	-99.533	92.947	-8.237	36.452	-4.068	48.956	174.051*	51.024
Human capital	-82.511	82.363	46.029	40.247	-106.562	55.665	-112.039	64.444
Passive L&T modes	65.378	83.718	-24.708	36.874	-66.798	44.22	8.535	43.528
Activating L&T modes	-135.703	86.195	-32.597	35.639	-4.353	47.978	75.819	62.676
Study abroad	-314.886*	85.259	-57.355	32.599	-165.999*	68.508	-281.736*	74.444
Volunteering	14.404	82.128	53.456	35.922	141.891*	50.105	194.576*	57.009
Work experience	-17.21	81.131	-42.498	37.311	-103.185*	43.25	-96.666	52.044
Internship	-54.321	78.673	-66.171	38.098	136.034*	56.617	35.703	57.3
Employment through electronic media	363.158	188.174	96.128	89.351	24.212	116.458	-55.299	119.587
Employment through Employment Agency	-19.843	289.368	-307.094*	89.477	-300.282*	122.675	-195.596	129.224
Employment - contacted employer by own initiative			488.582*	157.008				
Employment through social networks	21.424	195.979	-156.351	84.469	-187.63	114.539	-305.424*	129.688
Employment - approached by employer	296.428	275.289	112.995	104.578	170.935	129.306	43.653	160.686
Employment through internship			-5.729	138.644				
Employment through family, friends, acquaintances	45.985	181.638	-56.982	92.593	3.421	105.193	-186.847	121.963
Employment through help of HEI			-213.325	143.295				
Employment through work placement during HE			154.125	197.23				

*Note: *p<0,05*
Source: Author's work

In addition, voluntary work and internships during the studies have a positive influence on access to a better-paid first job. Graduates with a bachelor's degree from non-universities who have gained volunteering experience during their studies will earn, on average, EUR 142 more per month (B=141.891; S.E.=50.105) than

graduates without such experience. Similarly, graduates in the same group who have completed an internship during their studies will have salaries on average EUR 136 higher (B=136.034; S.E.=56.617) than those who have not completed an internship. These practises can, in turn, be attributed to the increased social capital that a person can build up during their studies by making connections with potential employers through various learning activities. Graduates who have completed a study period abroad are also more likely to find their first job with a lower income than their counterparts who stayed at their home higher education institution. This, in turn, can be attributed to a lack of social capital among those who did not build up their social networks sufficiently during their studies.

Conclusion

This paper provides new insights into the transition from higher education to the labour market. It makes a scientific contribution to the theoretical discussion and development of the construct of employability. Analysing the results of the original empirical research provides new insights into the predictors of employability.

The aim was to test an operational model of employability developed based on human, cultural, and social capital theories and constructivist educational theory, which were adapted to the Eurograduate survey. Three research propositions were formulated to examine the impact of cultural, social and human capital, including the role of the learning and teaching environment, on the employability of graduates at an early stage of their career. Employability is measured here by the probability of finding a first job after graduation in an occupation corresponding to the level of qualification, in a position with a higher monthly income and in a shorter time after graduation.

The model was tested in one country (Croatia) and proved to be applicable for analyses in other countries that participated in the survey in order to compare the results and measure the employability of people gaining qualifications and looking for work in different countries. The results largely support the second research proposition (RP2), which is that human, cultural, and social capital and the activating learning environment during higher education have a positive influence on higher monthly incomes. The third research proposition (RP3) was examined to test the impact of the employability predictors identified by the model on the probability of finding employment in a shorter time after graduation. The only significant result supporting the research propositions was found for the influence of social capital built up through internships during the studies. Graduates with a Master's degree who have completed an internship during their studies are more likely to find a job in a shorter time after graduation than those who have not completed an internship.

To better understand these results, it must be taken into account that more than 50 % of graduates with a bachelor's degree continue their studies at the Master's level and were therefore not included in the analysis. However, these results call into question the indicator of finding a job shortly after graduation, as graduates may decide to postpone their employment for various reasons and possibly look for better opportunities instead of accepting the first job. This is obviously only possible for those who come from privileged families who can support them in their job search and career choice. Therefore, a more in-depth analysis would be necessary to understand better the reasons for postponing employment.

Regarding the assumed positive effects of activating learning and teaching modes predominantly used by higher education institutions and specific high-impact practices that contribute to human capital formation and thus employability, the analyses provided limited support for the three research propositions, confirming only

volunteering and internships as practices with a significant impact on employability. However, further research is needed to investigate the different practices of higher education institutions that can lead to better employment outcomes.

However, the model has some limitations. Despite the intention to capture the complexity of the employability construct in this study, the definition of employability has been adapted to the study of early career outcomes and the available data from the Eurograduate survey. The operational model of employability, therefore, does not include all elements that are theoretically considered important to the wider discussion of employability. External factors such as the local economy and economic development, which determine the demand for labour, as well as the skills profile of current job seekers in the labour market, which make graduate employment a more or less competitive process, and the family and personal circumstances of job seekers such as place of residence, transport infrastructure, availability of childcare, etc., undoubtedly have an impact on employability outcomes but have not been included in the model as they are not captured by the Eurograduate research instruments used and represent the limitations of this research.

The operational employability model presented in this paper can support further research about the predictors of graduate employability during the transition from study to work and the comparative cross-country analysis of graduate employability. The application of this model will ultimately help to improve our understanding of the multifaceted determinants of employability.

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