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Further assessment of the employability-inventory in a sample of dual study graduates

Abstract

This study used confirmatory factor analyses and descriptive statistics on new data from 345 dual study graduates in Germany to further assess a newly developed and recently published self-report inventory of employability. The resulting 19-item inventory showed a good model fit and factorial validity, with small to medium inter-scale correlations. This provides a solid base for further research and a targeted tool for assessing dual study graduates' employability. Limitations and future research scope are discussed.

Keywords

employability, labor market, dual studies, graduates

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1 Introduction

Owing to the increasing complexity and ambiguity of society and the labor market, employability—an individual's ability to obtain and maintain employment (RÖMGENS et al., 2020)—has become a highly relevant topic (RUMP & EILERS, 2017). While research on employability has its foundations in the context of the workplace (VAN DER HEIJDE & VAN DER HEIJDEN, 2006), it is also being applied to university graduates and their transition to the labor market (BRADLEY et al., 2021). Since universities are responsible for preparing students for their transition into employment, employability has become a crucial construct for research in higher education (MONTEIRO et al., 2021; PEETERS et al., 2019). Additionally, the rising competition in the labor market and long-term impacts of the COVID-19 pandemic, as observed in the overall high unemployment rates of Organization for Economic Cooperation and Development (OECD) countries (BRADLEY et al., 2021), require graduates to be employable. Therefore, a sound measurement of graduates' employability is required to provide sufficient data to evaluate the success of study programs and development of competencies (BENNETT & ANANTHRAM, 2022), which are highly important for a successful transition into the labor market. Existing instruments lack appropriate measurements for dual study graduates; for example, only focusing on long-term unemployment or isolating specific characteristics of study programs. To fill this gap, a self-report inventory of employability was developed and tested with dual study graduates. The present work is part of a research process from which the preliminary studies were recently published in this journal (LATUSKA et al., 2023).

2 Theory

2.1 The concept of employability

In the 1990s, researchers began to explore the construct of employability and its relevance, particularly in the workplace (VAN DER HEIJDE & VAN DER HEIJDEN, 2006). While various disciplines have studied employability, it is commonly understood as the ability to obtain and maintain employment (RÖMGENS et al., 2020). To understand this capability in depth, two central conceptualizations must

be mentioned. Employability, for instance, in the concept of sustainable employability, is defined as a set of competencies that enables employees to perform well at their jobs (FLEUREN et al., 2018). The second central concept focuses on employment. A person can be employable by changing and trying different jobs throughout their career without the need to be constantly employed without interruptions (EUROPEAN COMMISSION, 2014). Combining a set of competencies and one's ability to move within the labor market or become self-employed is a more differentiated understanding of employability. A high degree of employability that is fostered by universities can enable graduates to move successfully within the labor market (ARRANZ et al., 2022). Employability was understood from this perspective for the development of the self-report tool in this research.

2.2 Instruments and studies

Within the process of developing the inventory (LATUSKA et al., 2023), the following publications were reviewed. The goal was to identify the degree to which the existing instruments could be applied to dual study graduates.

Two central studies were published by APEL and FERTIG (2009) and BRUSSIG and KNUTH (2009). In the process of developing a tool, APEL and FERTIG (2009) conducted interviews with recipients of unemployment benefits (*Arbeitslosengeld* I) and individuals in the new benefit system (*Arbeitslosengeld* II) in Germany using a newly developed questionnaire. It was based on tools used by employment agencies; therefore, it was specifically designed for long-term unemployed individuals. Findings were used to extract components of employability and link them to employment. Eighteen indicators were identified. They show significant associations with the likelihood of unemployed individuals to be integrated into the labor market. BRUSSIG and KNUTH (2009) extended this study by controlling for sociodemographic and regional variables. Both studies developed a tool that can be used for assessing the employability of unemployed individuals. University graduates are not part of this as they usually obtain their first job after completing their studies. Therefore, the identified components are not suitable for assessing their employability since they are designed to determine factors affecting long-term unemployment. Components include the activity of searching for a job, having a car and/or a driv-

er's license, number of job interviews, and personal circumstances (BRUSSIG & KNUTH, 2009).

In the international context, RUSSELL (1997) provided an overview of the instruments used to measure the employability of students. Most instruments were identified as being suitable for this specific group. However, they are directed toward employability-related constructs, such as basic academic skills, technology, or resource management. These constructs were selected based on publications between 1990 and 1991 in the context of initiatives by the U.S. state departments of labor as well as education. BLADES et al. (2012) conducted a literature review of the measurement of employability. They concluded that the existing measures are inconsistent and have not been sufficiently validated. LIE (2016) performed a comparative meta-analysis of existing measures and found that the number of studies comparing instruments was insufficient. Furthermore, most studies that develop a measurement of employability focus on its generic components (FAJARYATI et al., 2021; TENTAMA & NABILAH, 2020). Participants were mainly engineering (YUSOF et al., 2012; HUSAIN et al., 2014; SUNARDI et al., 2016) or business students (RAMISETTY & DESAI, 2017). Similar and more recent studies have been conducted by LLINARES-INSA et al. (2018), FLEUREN et al. (2018), VAN DER HEIJDEN et al. (2018), and BENNETT and ANANTHRAM (2022).

In most parts, the reviewed studies focused on either long-term unemployment or generic components, such as communication or information management skills of university students and experienced workers in different countries and work sectors. The selection of constructs builds on various foundations, such as previous studies on student employability (TENTAMA & NABILAH, 2020), political frameworks (HUSAIN et al., 2014), or specific models of employability, including sustainable employability (FLEUREN et al., 2018) and the bioecological model (LLINARES-INSA et al., 2018). Considering these aspects of the existing instruments and research, an appropriate tool could not be found.

3 Operationalization

Reflecting on the outlined gaps, the aim was to develop a self-report tool for dual study graduates (LATUSKA et al., 2023). This tool differs from the others, especially in considering some of the success criteria for completing a dual study program (ZIMMERMANN et al., 2021). These benchmarks are highly relevant as a dual study program is characterized by unique aspects, such as the 3-monthly rotation between theory and practice and a high degree of practical experience.

According to RUMP and EILERS (2017), the concept of employability includes three aspects, namely competencies/qualifications, health, and identification/motivation. These aspects served as the basis for the development of the scales. In the preliminary studies, the inventory began with 10 scales that were revised after the initial analyses. The listed scales (p. 6) represent the final inventory, which is a result of the previous findings (LATUSKA et al., 2023). With the exception of health, all scales are assigned to the aspect of competencies/qualifications (RUMP & EILERS, 2017). Additionally, action- and customer orientation are derived from the requirements profile related to the success criteria. Agility and transdisciplinarity were selected based on findings considering skills leaders need in the paradigms of new work (GRUNINGER-HERRMANN et al., 2020). Including a scale for digital competence was decided based on a survey with the cooperating companies.

(1) The action orientation describes how a chosen decision is translated into a goal-directed activity (HECKHAUSEN & HECKHAUSEN, 2010). In a broader sense, this understanding includes the regulatory elements of action competence (SCHIRMER, 2006).

(2) Customer orientation describes the extent to which customers' needs and wishes are recognized, reflected, and implemented in terms of positive service provider behavior (BRUHN et al., 2007; BRUHN & STAUSS, 2010).

(3) Health refers to the ability and motivation to lead an active life with respect to economic and social aspects (WORLD HEALTH ORGANIZATION, 1986).

(4) Agility is the capacity to anticipate change and adapt oneself and the organization to changing conditions to achieve statutory goals in the best possible way. This includes reacting flexibly to unforeseen events and new require-

ments as well as acting proactively rather than reactively to changes (GRUN-INGER-HERMANN et al., 2020).

(5) Transdisciplinarity refers to the ability to think and act across disciplines by considering and integrating multiple perspectives (GRUNINGER-HER-MANN et al., 2020).

(6) Digital competence is demonstrated by skills in information processing, communication, digital content creation, protection and security, and problem-solving (WUERFFEL, 2017).

4 Method

4.1 Preliminary studies

The primary goal of the first studies, reported in the recently published article, was to develop items, assess the inventory, and explore the differences between groups (LATUSKA et al., 2023). The first study was conducted with dual study students. After modifying the inventory, a newer version was assessed using a sample of 75 dual study graduates. Using a Mann-Whitney-U test, differences between the groups were calculated to obtain initial validity findings. The graduates reported considerably higher scores than the students on the following scales: customer orientation, transdisciplinarity, and digital competence. Although these results are substantial, some limitations must be considered. Owing to the low response rate, the descriptive statistics relied only on 75 complete cases. In addition, confirmatory factor analyses had to be conducted with the larger sample of students and did not align with the focus on graduates. Based on these findings, a version with 24 items was developed. This new version forms the basis for the present study, which examines a larger sample of graduates. This allowed for confirmatory factor analyses and correlations to be calculated with a sufficient sample.

4.2 Current study

A cross-sectional online self-report study was conducted. Items were integrated into the panel survey for dual study graduates in Baden-Württemberg, Germany. The

survey consisted of such variables as current employment and further education. The inventory (Supplemental material) was placed at the end. The six scales[2] were action orientation, customer orientation, health, agility, transdisciplinarity, and digital competence. The instruction given to the participants was as follows: "Please indicate below how much the following statements apply to you". Each item was rated on a scale ranging from 1 (*Fully disagree*) to 5 (*Fully agree*). Since this survey was also administered to graduates in the social work sector, the customer orientation scale was slightly modified by replacing the term *client* with *customer* to properly address groups, such as patients in a hospital or care facility.

4.3   Procedure

From April 6 to 30, 2022, graduates were invited via e-mail to participate in the panel survey via EFS Unipark. On the first page, they were informed about the nature of the study, processing of the data, and department responsible for data safety, data protection, and privacy. When registering for the panel project, the graduates already agreed to their contact data being stored. They were informed that they can withdraw this consent at any time. A link to the applied data protection regulations according to the GDPR was inserted.

4.4   Participants

A total of 963 graduates were contacted, and around 417 graduates participated in the survey. Cases with incomplete answers were excluded, leaving a final total of 345. Due to the protection of personal information, sociodemographic information was not accessible as the graduates agreed to share it only within the panel survey.

4.5   Statistical analysis

Data were analyzed using IBM® SPSS® 28 and IBM®AMOS® 28. Factorial validity was assessed using confirmatory factor analyses in a six-factorial, first-order model.

2 Items were originally in German; the complete German and English versions of the inventory can be found in the supplemental online material.

To calculate means, including standard deviations, skewness, and excess (including correlations), variables were created by merging all items of each scale into one mean. Internal consistencies and part-whole correlations were calculated separately.

5 Results

5.1 Current situation after graduation

Most graduates reported that they were employed (73.9%) while 5.5% reported other statuses, such as traveling, taking a sabbatical, or preparing for a master's program. Only 2.6% were looking for employment. Two individuals were in the process of starting a second bachelor's program (0.6%). The majority of graduates were hired by their cooperating companies (73.3%) whereas a smaller proportion (26.7%) were transferred to different stations. The latter group reported various reasons for not being hired, including the desire to change the place of work (13.9%), hiring not being possible (8.4%), wanting to change the area of work (5.2%), aspiration to become self-employed (0.3%), and others (8.4%).

5.2 Factorial validity

In the first model with 24 items (Table 1; Supplemental material), the results indicated an acceptable fit: χ^2 (237)=454.882 (p=.000), χ^2/df=1.919, $RMSEA$=.052 (p=.340); 90% CI=[.044; .059], CFI=.903, and TLI=.887 (GÄDE et al., 2020). Information criteria were AIC=580.882 and BIC=823.026. Factor loadings ranged from λ=.084 to .859. Outliners with low factor loadings of $\lambda \leq .50$ (WEIBER & MÜHLHAUS, 2014) were digital competence_3: 'I am always careful with sensitive and personal data on the Internet', transdisciplinarity_1: 'I always look at problems from several perspectives' and 3: 'I usually look at contradictions as learning opportunities', customer orientation_4: 'I can usually answer questions from customers in a targeted manner', health_6: 'I can manage my professional requirements well', and agility_4: 'When I have made an important decision, I can change it if this serves set goals'. Furthermore, digital competence_4 ('I always get to grips with new programs and devices quickly and well'), agility_4, and health_6 showed most of the largest

standardized residual covariances of >1, which could be an indication that these items decreased the model fit (MAYDEU-OLIVARES & SHI, 2017). For the second analysis, the latter items, except for transdisciplinarity_1 and digital competence_4, were excluded.[3] In reference to GÄDE et al. (2020), the indices demonstrated a good fit: χ^2 (137)=190.725 (p=.002), χ^2/df=1.392, $RMSEA$=.034 (p=.994); 90% CI=[.021; .045], CFI=.972, TLI=.965, AIC=296.725, and BIC=500.433.

Tab. 1: Confirmatory Factor Analyses of the employability-inventory

Model	χ^2	df	χ^2/df	RMSEA	CFI	TLI
24 items	454.882 (p=.000)	237	1.919	.052 (p=.340)	.903	.887
19 items	190.725 (p=.002)	137	1.392	.034 (p=.994)	.972	.965

Note. 345 graduates.

5.3 Descriptive statistics and correlations

Table 2 presents the descriptive statistics, including the correlations and coefficient alphas in the 19-item version. Considering the orientation in assessing question-naires with Cronbach's α>.70 indicating a good internal consistency (TABER, 2018), action orientation, transdisciplinarity, and digital competence showed inadequate consistencies. With health and agility being >.70 and customer orientation being close to .70, they showed adequate-to-good consistencies.

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3 It was decided to keep the items as transdisciplinarity would have been represented by only one and digital competence by only two items; for reflective models with multiple constructs, WEIBER and MÜHLHAUS (2014) recommended a minimum of two items per construct.

Tab. 2:   Descriptive Statistics of the employability-inventory (19 Item Version)

Scale	*M*	*SD*	*1*	*2*	*3*	*4*	*5*	*6*
1. Action orientation (AO)	3.98	.58	(.583)					
2. Customer orientation (CO)	4.20	.54	.273**	(.656)				
3. Health (HE)	3.93	.75	.472**	.177**	(.860)			
4. Agility (AG)	3.77	.68	.438**	.277**	.415**	(.759)		
5. Transdisciplinarity (TD)	3.99	.63	.307**	.292**	.203**	.412**	(.478)	
6. Digital competence (DC)	4.20	.62	.230**	.216**	.213**	.334**	.422**	(.616)

Note. 345 graduates. Cronbach's alphas are in parentheses.
**$p <. 01$

The correlations between the scales were assessed according to MARCUS (2004) by aiming for coefficients of $r \leq .50$. All correlations were significant within the preferred range. The skewness and excess of each scale ranged from -.323 to -.873 (SE=.131) and -.048 to 1.057 (SE=.262), respectively. Part-whole correlations should range from r_{it}=.40 to .70 (KELAVA & MOOSBRUGGER, 2020). According to RAITHEL (2008), values should be $r_{it} \geq .30$. Values between .30 and .70 served as orientation. With a minimum of .315 and a maximum of .781, the items had acceptable part-whole correlations.

6 Discussion

6.1 Assessment of the scales

Building on preliminary studies (LATUSKA et al., 2023), the factorial validity, descriptive statistics, and correlations of the newer version were analyzed.

In the factor analyses, seven items were deleted. From this set of items, five were excluded, resulting in an improvement in the model fit. Prior to the exclusion, each item was theoretically examined. The 19 items adequately represent the five scales. Transdisciplinarity did not have sufficient psychometric quality. Compared to the previous studies, the 19-item version had the best model fit.

Considering the Cronbach's α, the scales showed a wide range. As action orientation, transdisciplinarity, and digital competence did not report good consistencies, their items did not seem to fully reflect their constructs. Action orientation was operationalized using three items that may have been insufficient. Transdisciplinarity consisted of two items and is a fairly new construct, which could account for the low consistency. Digital competence was newly developed for this process. To improve these scales, their operationalizations must be revised.

The six scales were significantly correlated in low-to-medium degrees. According to MARCUS (2004), these values indicate that there are no critical overlaps. The strongest correlation was observed between action orientation and health. Given the definitions of both constructs, this degree of correlation is expected as they both incorporate the idea of actively living and working in general as well as toward specific goals. The correlation between customer orientation and health is the lowest. Since the first is directed toward others and health is more focused on the individual, this degree of correlation is expected as well. These scales have a substantial association with each other based on the concept of employability.

6.2 Implications

Commonly used indicators of employability, such as Times Higher Education's Global Employability University Ranking, are employer-focused and political. Employability is defined by employer surveys and relies on reputation and academic excellence (KAUPPI, 2018). However, this approach misses an important aspect,

as employability is an individual's ability (RÖMGENS et al., 2020). It needs to be assessed at the level of the graduates. By providing a self-report measure that goes beyond mere unemployment, this study has adopted an employee-focused understanding.

For employers, this reduces the complexity to defined dimensions, which can help them to understand the concept of employability. It distinguishes employability from the politically used term employment. Secondly, this approach contributes to the debate on employability by promoting an understanding of employability as a multifaceted construct. When state agencies provide support to unemployed individuals, the dimensions can be used to guide the provision of training, counseling, and assessment of an individual's development. Furthermore, and in line with the success criteria and the practical experience (Chapter 3), the employability of dual study graduates can be accurately represented, as the tool provides an opportunity to measure the specific dimensions that constitute employability, taking into account the learning experiences and the cycle of theory and practice. Finally, although the present work aims to develop an inventory for dual study graduates, this approach can also be applied to other programs in the higher education sector. The tool can support the process of defining the dimensions of employability, or even be fully applied after outlining the characteristics of the program and the resulting required competencies.

6.3 Limitations

This study used a cross-sectional, self-report design. In validating psychometric inventories, a longitudinal design is important to test the stability over time. Second, the self-report design provided several advantages in terms of economic aspects. However, graduates' responses may be biased due to their self-perceptions.

Third, reliability was assessed using internal consistencies and part-whole correlations. Other forms of reliability were not part of the development as there was no opportunity for a longitudinal design. Furthermore, the validity was assessed using confirmatory factor analyses and correlations. Sociodemographic variables could not be included. Given the request of the graduates to share this information only within the standardized survey, there was no other way to obtain the data. Finally, the primary idea was to explore the differences between graduates who were hired

and those who were not based on the assumption that graduates with higher scores are more likely to be hired. In the conceptual discussion, two aspects that affected the analyses were considered later. First, this research group made use of the variables offered by the panel group where the item for the hiring of graduates was not dichotomous but offered the possibility to indicate multiple reasons for not being hired, such as transitioning into self-employment, wanting to change the area of work, and/or hiring not being possible. In line with the theory section, we decided to view employability as a combination of the set of competencies and movement within the labor market. Therefore, validating the inventory based on a dichotomous variable such as hiring seemed inappropriate as it would exclude individuals with a possible high employability solely because they were not hired. Additionally, dividing the datasets, for example, graduates who were hired vs. those who were not, by different reasons owing to the multiple-choice option did not provide sufficient datasets for analyses as there could be multiple reasons why the graduates were not hired.

6.4   Future research

To provide evidence of construct validity, studies within the nomological network must be conducted (KANNING, 2019). A longitudinal study design is recommended to further assess and modify the inventory. With this design, the reliability of the scales can be analyzed over time. Finally, it could be insightful to explore more differences between groups.

Acknowledgements

7 References

Apel, H. & Fertig, M. (2009). Operationalisierung von „Beschäftigungsfähigkeit" – ein methodischer Beitrag zur Entwicklung eines Messkonzepts. *Zeitschrift für Arbeitsmarkt-Forschung, 42*(1), 5–28. https://doi.org/10.1007/s12651-009-0005-y

Arranz, N., Arroyabe, M. F., Sena, V., Arranz, C. F. A. & Fernandez de Arroyabe, J. C. (2022). University-enterprise cooperation for the employability of higher education graduates: a social capital approach. *Studies in Higher Education*, *47*(5), 990–999. https://doi.org/10.1080/03075079.2022.2055323

Bennett, D. & Ananthram, S. (2022). Development, validation and deployment of the EmployABILITY scale. *Studies in Higher Education*, *47*(7), 1311–1325. https://doi.org/10.1080/03075079.2021.1888079

Blades, R., Fauth, B. & Gibb, J. (2012). *Measuring Employability Skills*. A rapid review to inform development of tools for project evaluation, National Children's Bureau.

Bradley, A., Priego-Hernández, J. & Quigley, M. (2021). Evaluating the efficacy of embedding employability into a second-year undergraduate module. *Studies in Higher Education*, *47*(11), 1–13. https://doi.org/10.1080/03075079.2021.2020748

Bruhn, M. & Stauss, B. (2010). *Serviceorientierung im Unternehmen*. Wiesbaden: Gabler.

Bruhn, M., Hadwich, K. & Georgi, D. (2007). Integrierte Kundenorientierung als Treiber der Service Excellence: Theoretische und empirische Befunde zur Effektivität von externer und interner Kundenorientierung. In M. H. J. Gouthier & I. Balderjahn (Hrsg.), *Service Excellence als Impulsgeber*. *Strategien – Management – Innovationen – Branchen* (S. 53–72). Wiesbaden: Gabler.

Brussig, M. & Knuth, M. (2009). Individuelle Beschäftigungsfähigkeit: Konzept, Operationalisierung und erste Ergebnisse. *WSI Mitteilungen*, *6*, 287–294.

European Commission. (2014). *Zugang*, *Studienerfolg und Beschäftigungsfähigkeit*: Eurydice-Bericht (Modernisierung der Hochschulbildung in Europa, 2). Brüssel: EACEA P9 Eurydice.

Fajaryati, N., Budiyono, Akhyar, M. & Wiranto (2021). Instrument Development For Evaluating Students' Employability Skills. *Journal of Physics*: Conference Series, *1842*(1). https://doi.org/10.1088/1742-6596/1842/1/012035

Fleuren, B. P. I., van Amelsvoort, L. G. P. M., Zijlstra, F. R. H., Grip, A. de & Kant, I. (2018). Handling the reflective-formative measurement conundrum: A practical illustration based on sustainable employability. *Journal of Clinical Epidemiology*, *103*, 71–81. https://doi.org/10.1016/j.jclinepi.2018.07.007

Gäde, J. C., Schermelleh-Engel, K. & Brandt, H. (2020). Konfirmatorische Faktorenanalyse (CFA). In H. Moosbrugger & A. Kelava (Hrsg.), *Testtheorie und Fragebogenkonstruktion* (S. 615–659). Berlin, Heidelberg: Springer.

Gruninger-Hermann, C., Imbery, S., Laage-Witt, S., Lindemann, M., Rowbotham, M. & Schirmer, U. (2020). New Work Führungskompetenzen: Reflexive Selbsterkennung als Basis erfolgreicher Führung. *Personalführung*, *10*, 36–43.

Heckhausen, J. & Heckhausen, H. (Hrsg.). (2010). *Motivation und Handeln*. Berlin: Springer.

Husain, M., Mustapha, R., Malik, S. & Mokhtar, S. (2014). Verification of Employability Skills Inventory using Confirmatory Factor Analysis. *Journal of Asian Vocational Education and Training*, *6*, 1–9.

Kanning, U. P. (2019). *Standards der Personaldiagnostik*: *Personalauswahl professionell gestalten*. Göttingen: Hogrefe.

Kauppi, N. (2018). The global ranking game: narrowing academic excellence through numerical objectification. *Studies in Higher Education*, *43*(10), 1750–1762. https://doi.org/10.1080/03075079.2018.1520416

Kelava, A. & Moosbrugger, H. (2020). Deskriptivstatistische Itemanalyse und Testwertbestimmung. In H. Moosbrugger & A. Kelava (Hrsg.), *Testtheorie und Fragebogenkonstruktion* (S. 143–158). Berlin, Heidelberg: Springer.

Latuska, L., Zimmermann, L., Landis, J. & Schirmer, U. (2023). Entwicklung und Validierung eines Inventars zur Employability nach dem dualen Studium. *Zeitschrift für Hochschulentwicklung*, *18*(1), 193–221. https://doi.org/10.3217/zfhe-18-1/11

Lie, G. (2016). *A meta-analysis of measuring Employability through its effects on Life and Career Satisfaction*. Master-Thesis. University, Amsterdam.

Llinares-Insa, L. I., González-Navarro, P., Zacarés-González, J. J. & Córdoba-Iñesta, A. I. (2018). Employability Appraisal Scale (EAS): Development and Validation in a Spanish Sample. *Frontiers in Psychology*, *9*, 1–11. https://doi.org/10.3389/fpsyg.2018.01437

Marcus, B. (2004). Rezension der 2. Auflage des Bochumer Inventars zur berufs-bezogenen Persönlichkeitsbeschreibung (BIP) von R. Hossiep und M. Paschen. *Zeitschrift für Arbeits- und Organisationspsychologie, 48*(2), 79–86. https://doi.org/10.1026/0932-4089.48.2.79

Maydeu-Olivares, A. & Shi, D. (2017). Effect Sizes of Model Misfit in Structural Equation Models. *Methodology, 13*(Supplement 1), 23–30. https://doi.org/10.1027/1614-2241/a000129

Monteiro, S., Almeida, L. & García-Aracil, A. (2021). "It's a very different world": work transition and employability of higher education graduates. *Higher Education, Skills and Work-Based Learning, 11*(1), 164–181. https://doi.org/10.1108/HES-WBL-10-2019-0141

Peeters, E., Nelissen, J., Cuyper, N. de, Forrier, A., Verbruggen, M. & Witte, H. de (2019). Employability Capital: A Conceptual Framework Tested Through Expert Analysis. *Journal of Career Development, 46*(2), 79–93. https://doi.org/10.1177/0894845317731865

Raithel, J. (2008). *Quantitative Forschung: Ein Praxiskurs*. Wiesbaden: VS Verlag für Sozialwissenschaften.

Ramisetty, J. & Desai, K. (2017). Measurement of Employability Skills and Job Readiness Perception of Post-graduate Management students: Results from A Pilot Study. *International Journal in Management and Social Science, 5*(8), 82–94.

Römgens, I., Scoupe, R. & Beausaert, S. (2020). Unraveling the concept of employability, bringing together research on employability in higher education and the workplace. *Studies in Higher Education, 45*(12), 2588–2603. https://doi.org/10.1080/03075079.2019.1623770

Rump, J. & Eilers, S. (2017). Das Konzept des Employability Management. In J. Rump & S. Eilers (Hrsg.), *Auf dem Weg zur Arbeit 4.0: Innovationen in HR* (S. 87–126). Berlin, Heidelberg: Springer.

Russell, C. (1997). *Assessing Employability Skills*. Document Resume. Iowa State Department of Education.

Schirmer, U. (2006). Die induktiv-deduktive Lernschleife in der handlungsorientierten Didaktik. *Personalführung, 1*, 62–69.

Sunardi, Purnomo & Sutadji, E. (2016). *Employability skills measurement model's of vocational student*. IMEEEC 2016, East Java, Indonesia.

Taber, K. S. (2018). The Use of Cronbach's Alpha When Developing and Reporting Research Instruments in Science Education. *Research in Science Education*, *48*(6), 1273–1296. https://doi.org/10.1007/s11165-016-9602-2

Tentama, F. & Nabilah, B. (2020). Construct Validity Of Employability: Confirmatory Factor Analysis Of The Employability Scale. *International Journal of Scientific & Technology Research*, *9*(2), 538–542.

Van der Heijde, C. M. & Van der Heijden, B. I. J. M. (2006). A competence-based and multidimensional operationalization and measurement of employability. *Human Resource Management*, *45*(3), 449–476. https://doi.org/10.1002/hrm.20119

Van der Heijden, B. I., Notelaers, G., Peters, P., Stoffers, J. M., Lange, A. H. de, Froehlich, D. E. & van der Heijde, C. M. (2018). Development and validation of the short-form employability five-factor instrument. *Journal of Vocational Behavior*, *106*, 236–248. https://doi.org/10.1016/j.jvb.2018.02.003

Weiber, R. & Mühlhaus, D. (2014). Strukturgleichungsmodellierung: Eine anwendungsorientierte Einführung in die Kausalanalyse mit Hilfe von AMOS, SmartPLS und SPSS. Berlin, Heidelberg: Springer.

World Health Organization (1986). *Ottawa Charta for Health Promotion*. Geneva: WHO. https://apps.who.int/iris/bitstream/handle/10665/349652/WHO-EURO-1986-4044-43803-61677-eng.pdf

Wuerffel, S. (2017). DigComp – A Framework For Digital Competencies: Suggestions for a practical application of DigComp – Benefits for SMEs. dc4work.

Yusof, H. M., Mustapha, R., Mohamad, S. A. M. S. & Bunian, M. S. (2012). Measurement Model of Employability Skills using Confirmatory Factor Analysis. *Procedia – Social and Behavioral Sciences*, *56*, 348–356. https://doi.org/10.1016/j.sbspro.2012.09.663

Zimmermann, L., Latuska, L., Landis, J. & Schirmer, U. (2021). Dem Studienabbruch vorbeugen. Das Diagnostik-Beratungs-Center der DHBW Lörrach unterstützt Duale Partner mit digitalen Diagnostiktools bei deren Auswahl von dualen Studienbewerber*innen. *Personalführung*, *10*, 58–63.

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