Estimations of Work Ability Factors in the Face of the COVID-19 Pandemic

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Abstract

Work ability is a facilitating factor for management in terms of life, work, and productivity. This research aimed to identify the work ability factors (WAF) in the face of the COVID-19 pandemic, correlating these estimations according to the gender and age of workers, personal development, and finances. An exploratory survey was conducted with an intentional non-probabilistic sample and factor analysis to refine the data and identify the most-applied WAF. We executed the Levene test, ANOVA analysis, Kruskal-Wallis, and Bonferroni to make estimations considering the gender and age factors. The SEM related the elements of personal development and finances. The results show no significant change in the measures of work ability according to gender and age. It is observed that personal development and work alignment represent the most notable work ability factors. The relevance of studies on work ability remains essential to assessing working conditions.

Keywords: work ability, work context, COVID-19.

Estimação dos Fatores de Capacidade no Trabalho Diante da Pandemia de COVID-19

Resumo

A capacidade de trabalho é um fator facilitador para a gestão em termos de vida, trabalho e produtividade. O objetivo dessa pesquisa foi realizar uma estimação dos fatores de capacidade para o trabalho (FCT) frente à pandemia de COVID-19, relacionando-os com gênero e idade dos trabalhadores, desenvolvimento pessoal e finanças. Foi realizado um survey exploratório com amostra não probabilística intencional e uma análise fatorial para refinar os dados e identificar os FCT estimados. Foram executados: testes de Levene, ANOVA, Kruskal-Wallis e Bonferroni para fazer suposições considerando os fatores gênero e idade. O SEM relacionou os fatores de desenvolvimento pessoal e finanças. Os resultados indicam que não houve mudança significativa quanto às estimações dos FCT de acordo com gênero e idade. Observa-se que o desenvolvimento pessoal e o alinhamento ao trabalho representam os FCT mais notáveis. A relevância dos estudos sobre capacidade para o trabalho continua sendo importante para avaliações das condições de trabalho.

Palavras-chave: capacidade para o trabalho, contexto de trabalho, COVID-19.

Estimación de los Factores de Capacidad en el Trabajo Ante la Pandemia de COVID-19

Resumen

La capacidad de trabajo es un factor facilitador para la gestión en términos de vida, trabajo y productividad. El objetivo de la investigación fue realizar una estimación de los factores de capacidad para el trabajo (FCT) ante la pandemia del COVID-19, relacionandolos con el género y la edad de los trabajadores, el desarrollo personal y las finanzas. Se realizó una encuesta exploratoria con un muestreo no probabilístico intencional y un análisis factorial para refinar los datos e identificar los FCT estimados. Fueron ejecutados la prueba de Levene, análisis ANOVA, Kruskal-Wallis y Bonferroni para realizar estimaciones considerando los factores sexo y edad. Y el SEM relacionó los factores de desarrollo personal y finanzas. Los resultados no muestran cambios significativos en las medidas de capacidad laboral según sexo y edad. Se observa que el desarrollo personal y la alineación laboral representan los FCT más destacados. La relevancia de los estudios sobre la capacidad para el trabajo sigue siendo esencial, ya que permite evaluar las condiciones de trabajo.

Palabras clave: capacidad para el trabajo, contexto de trabajo, COVID-19.

The Finnish Institute of Occupational Health (FIOH) started to research work ability in the early 1980s. The work ability concept and methods increased the internationalisation and popularisation of the terminology from the 1990s onwards (Ilmarinen, Tuomi, & Klockars, 2019). To quantify the work ability of workers and provide an indicator of the work ability of current workers, Finnish researchers Juhani Ilmarinen and Kaija Tuomi developed a set of questions to assess and indicate work ability (Ilmarinen et al., 1997).

Studies on work ability have shown that several job demands can thwart work ability (Brady et al., 2020). According to Truxillo, Cadiz and Brady (2020), work ability affects work outcomes, for example, job satisfaction, performance, motivation and strain, all indicators of worker success. A deeper investigation of the perceptions of work ability is usually missing from research on work ability according to some influential factors such as job searching, income, gender, age, and professional guidance.

Considering the COVID-19 pandemic, studies regarding the work ability contexts are essential since people have had to resignify and adapt how they work and which aspects of work are crucial to employment. Understanding factors of work ability and employability are essential because they can help to avoid unemployment. The pandemic worsened Brazil's unemployment and formal labour rate, which had about 14.4 million people searching for work, a rate of 14.1% of unemployment (Instituto Brasileiro de Geografia e Estatística [IBGE][1], 2021). This research estimates the factors of work ability in the context of the COVID-19 pandemic. And make considerations regarding gender, age, finances, and professional guidance.

Since the conception and initial application of work ability studies (Ilmarinen et al., 1997; Maltby, 2011), modern research on work ability has been carried out worldwide (Costa et al., 2019; Ng & Chan, 2017). The uniqueness of our study is that it was applied in the context of the COVID-19 pandemic in Brazil. And due to political, social, financial and health conditions, we found that employability factors precede work ability factors. We believe that efforts are made to maintain the employability base even under these challenging conditions. The work ability factors mentioned in this study indicate that workers are concerned with developing their skills to the full.

Work Ability and Employability

According to Ng and Chan (2017), knowing the work ability of workers can facilitate better management, quality of work, life, and productivity. The concept of work ability was introduced in Finland in the 1980s and is a measure of how good to perform a job a worker is in the present and near future and how capable he is to complete his work concerning the demands of work, health, and mental resources (Ilmarinen & Von Bonsdorf, 2015). Understanding the consequences of uncertainty about work ability and what this means for workers is essential.

Since the 1980s, the Finnish Institute of Occupational Health (FIOH) has researched work ability factors and has allowed the assessment of the main determinant variables of work ability (Kulmala et al., 2013). Work ability refers to the ability to generate work beyond employment. It is how the person sees himself economically producing, whether as an employee, consultant, entrepreneur, in short, all the multiple forms of work.

Researchers understand the definition of work ability in several ways, partly because of the disparate assessments in which the concept of work ability has evolved. "The concept of work ability is based on the assumption that employees' ability to work is determined by their perception of work demands and their ability to deal with those demands" (Derycke et al., 2012, p. 2). "The concept and methods of work ability have been developed, and extensive international research activities have started since the 1990s" (Ilmarinen, 2019, p.1).

According to Ilmarinen and Von Bonsdorf (2015, p. 1), "the concept of work ability was initially developed for the medical and occupational health areas, but later evolved to a more holistic approach that takes into account work-related factors, work organisation, management; and life outside of work". The concept of employability is distinguished from work ability; employability attempts to describe people's ability to become employable and keep their jobs or find new jobs (Maltby, 2011).

According to Ramos and Ramos (2020, p. 1169), "employability relies on internal factors (qualification, adaptability and flexibility of individuals, personal characteristics), as well as external factors (labour demands, characteristics of jobs offered, and economic factors)". However, "the 20th and 21st-century work contexts present different challenges and demands, the role of employability in career success in the 21st century is not yet fully understood in light of career adaptability" (Low, Yeves, Latorre, & Ramos, 2020, p. 1178).

Melo, Martins-Silva, De Andrade and Moura (2021, p. 5) reported that "both employability and satisfaction can be considered perceptions regarding career outcomes. Therefore, based on an initial understanding of barriers, we assume that these perceptions influence employability and satisfaction". Initially, workers pursue employability factors based on these perceptions. Then, they can explore the development of work ability factors. Melo et al. (2021, p. 33) affirmed that "doing what you like is the first condition for professional achievement. The second is to acquire skills that can guarantee their employability".

Bulhões, Vasconcelos and Leite (2016, p. 35) note that "work ability can be recognised as a scenario that requires the 'individual's ability to renew, innovate and update skills and competencies, personally and professionally". By investing in work ability, the worker invests in personal development, recognising their potential as an employee or entrepreneur. As necessary as measuring the work ability is implementing actions to promote the maintenance and improvement of this ability (Linhares, Marcis, Tonello, Pessa, & Oliveira, 2019).

Work Ability House Model

According to Gould et al. (2008, p. 63), "good work ability is a balance between a 'worker's resources, the demands and opportunities offered by work, and the characteristics of the external environment. These factors can be assumed to influence 'employees' estimations of their work ability". Firstly, the work ability house explains the dimensions of work ability from the point of view of human resources, work, and environment (Gould, Ilmarinen, Jarvisalo, Koskinen, 2008). This structure contains other factors: globalisation, new technology, digitalisation, population ageing, society, culture, legislation, social security, collective agreements, education, operational environment, infrastructure services, labour market, social networks, and family (Ilmarinen, 2019).

The work ability model house proposed by Ilmarinen (2019) shows these factors in the same way as the floors of a house. Family and social networks affect the entire bottom of this house. The first floor considers health and functional capacities. The second reflects competence, work experiences and learning. While the third considers factors such as values, attitudes

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and motivation. The fourth-floor concerns management and leadership skills considering work, work environment, work community and management.

Future of Work and COVID-19

According to the ILO (International Labor Organization), there were approximately 250 million unemployed people in the world at the beginning of this decade, representing around 10% of the workforce (Freitas, 2020). And the COVID-19 pandemic affected public spaces, organisational environment, intrapersonal and interpersonal relationships and brought the need to think about other ways of work, especially in a future marked by uncertain scenarios (Croda et al., 2020). All these changes impacted workers' professional and personal lives, contributing to changes in the perception of their ability to work. According to Ilmarinen and Von Bonsdorf (2015), work ability balances individuals' resources and work demands. To change this scenario, the working-age population must develop a sense of work ability that improves personal development in several areas of their professional activities.

Over time, there have always been changes regarding the reorganisation of work processes, such as introducing new technologies to improve the quality and quantity of production, more workforce requests, qualifications, and establishment of working hours (Ferreira, 2015). The work ability subject has evolved a lot in recent years, changing the role of people in the search for their professional careers.

According to the International Labor Organization (ILO, 2020, p.3), "COVID-19 will impact the world of work across three dimensions: quantity of jobs, quality of jobs and vulnerable specific groups of workers". This statement indicates a rise in unemployment and underemployment on a large scale. "The COVID-19 pandemic immediately affected the entire working class of the world. In the Brazilian case, during the health crisis, the labour market experienced a worsening of the general deterioration in conditions" (Bridi, 2020, p.147). "One unique feature of unemployment during the pandemic is that a large proportion of the initial unemployment is temporary layoff" (Fang, Nie, & Xie, 2020, p.3).

According to the World Economic Forum (2020), in the Future of Jobs Report from October 2020, roles that leverage distinctly "human" skills are predicted to grow, such as culture and culture specialists in customer service, sales and marketing. In addition, there is evidence of accelerating demand for various specialist roles in AI and machine learning, big data, and process automation. Following WEF (2020), it is interesting to develop organisational skills, such as leadership, commitment, and interpersonal relationships.

La Falce, Martins, Muylder and Pardini (2020, p. 156) observe that "technological advances have brought impacts on society, public and private organisations and work, including changes in organisational behaviour, such as variations in commitment, in satisfaction, and performance among others". Consequently, it is interesting to increase appropriate professional factors for employment, such as leadership, commitment, and interpersonal relationships.

Therefore, by evaluating the concepts presented about work ability, employability, and the future of work, it was possible to guide this research to build the methodology and the analyses to be carried out.

Methods

Participants

The sample contemplates the Brazilian working-age population as a questionnaire target in this study. The research methodology of this paper is an exploratory survey with a non-probabilistic intentional sample. We performed the questionnaires electronically through an electronic link directly sent to the sample participants from 2020 to 2021. Virtual questionnaires were sent to over 1500 possible respondents in Brazilian territory, with a total sample of 596 valid responses.

The questionnaires' data analysis presents the results with the help of the SPSS[2] software. We asked 50 closed questions about sociodemographic data, work ability factors, personal development, professional guidance, work alignment, financial resources, and implications of COVID-19. Each question is part of a specific analysis section presented in the Results section. Researchers from a study group at a federal higher education institution carried out the questionnaire pre-test.

In this research, we used seven questions to estimate the work ability factors in the context of the COVID-19 pandemic, as seen in Table 1.

Table 1
Questions from the questionnaire

Variables	Questions
Var. 1 Knowhow	Do you know your field of work well?
Var.4 Learning Skills	Learning new things allows the worker to evolve personally and professionally.
Var. 6 Work alignment	My work is totally in line with my vocation.
Var.7 Dress code	I consider it essential to take care of your appearance and wear appropriate clothes for the work environment.
Var. 8 Teamwork	Working as a team and interacting with people are one of my strengths.
Var. 9 Job satisfaction	I am satisfied with my current job.
Var. 10 Improvement	If I had the opportunity and financial condition to attend courses, I would.

It is possible, through this questionnaire, to understand the factors of work ability raised regarding the implications of COVID-19 on work in isolation and the consequences regarding the sample's estimations considering age e gender. According to this study sample, we estimated the work ability factors most noticed by workers to boost their careers.

Instruments

Measurement of constructs. We chose to use the five-point Likert scale because this scale has been the most popular in several classifications that human beings can easily distinguish. Therefore, the scale ran from strongly agree to strongly disagree through ordinal variables to perform the appropriate statistical analysis.

In terms of construct validity, the alpha value found was 0.723, an acceptable value according to Griethuijsen (2014), who states that the minimum proper value for reliability is 0.70. The validation process was carried out with a group of graduate students. The validation process is essential because it adjusts the process before applying the questionnaires to the accurate sample.

Given our research objective, we framed two sub-research questions. The first research question intends to estimate the

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2 https://www.ibm.com/br-pt/analytics/spss-statistics-software

factors of work ability in the context of the COVID-19 pandemic.

RQ1: Is it possible to estimate the work ability factors most applied by workers?

We also observe if these factors change according to gender and age. The observations aim to assess our four hypotheses:

H0$_{(a)}$: The estimated factors of work ability do not change according to gender.

H1$_{(a)}$: The estimated factors of work ability change according to gender.

H0$_{(b)}$: The estimated factors of work ability do not change according to age.

H2$_{(b)}$: The estimated factors of work ability change according to age.

And the second research question intends to relate work ability factors considering personal development and financial aspects.

RQ2: Can work ability factors determine professional guidance and financial development factors?

Data Collection Procedures and Ethical Considerations

We performed a factor analysis to identify the most applied work ability factors. Also, we applied Levene's test to evaluate differences between gender and age. And one-way Anova analysis to assess the estimations between samples. Also, we used the Kruskal–Wallis test in this sample to verify the relationship between gender and age factors (nominal variables) and the two work ability factors (ordinal variables). Then, we used Spearman's correlation analysis to connect some affirmatives (ordinal data) with nominal variables (nominal variables). After this, we carried out the Bonferroni posthoc test because it is a strongly recommended method to compare different groups and investigate the relationship between variables (Lee & Lee, 2018).

Data Analysis Procedures

Finally, we created an analysis through structured equation modelling (SEM), which made it possible to trace the relationship between personal development and work alignment, also between professional guidance and finances. In the final version of the SEM model, we achieved a GFI (goodness-of-fit) index of 0.944 and a CFI (comparative fit index) of 0.932, according to Hair Jr., Black, Babin, Anderson and Tatham (2019), which is a global comparative measure between the estimated and null models. Values greater than 0.9 are desirable. NFI (normed fix index) of 0.9111 indicates the proportion in which the proposed model fit is better than the fit of the null model. Hair et al. (2019) highlight that no absolute value indicates an acceptable level of adjustment, but they recommended it to be greater than 0.9. TLI (Tukey Lewis index) of 0.912 and an RMSEA (root mean square error of approximation) of 0.06 (with a *p*-value of near) are parsimony-adjusted indexes because values should be closer to 0, which represents a good fit (RMSEA ≤ 0.08). Therefore, it was a parsimonious model with a P-Ratio of 0.7. According to Barrett (2007, p. 819), "the criterion used for the adjustment is, in fact, an abstract concept in most SEM models. It is not predictive accuracy that will define it".

Results

Observations Regarding Questionnaires

We performed an analysis of the data obtained through 596 valid questionnaires. The sample comprises 62.24% women, 36.91% men, and 0.83% rather not say. 88.25% are under 39 years old, and 69.12% have a college degree.

Initially, we used factor analysis to explore the data and identify which factors influence work ability from the workers' perspective. The KMO test (Kaiser–Meyer–Olkin) revealed a value above the necessary level of 0.500 (0.850), which is the limiting value of factor analysis application (Matos & Rodrigues, 2019). The model shows that two factors, with eigenvalues above 1.0 (factor 1 – 3.933 and factor 2 – 1.142), can explain almost 72.50% of the original data variance, and seven variables can explain all variables from the sample. The extraction method used was principal component analysis. We used the varimax criterion and Kaiser normalisation. The rotation converged after three iterations, as can be seen in Table 2.

Table 2
Rotated Component Matrix

Variables	Factor 1 - Personal development	Factor 2 - Work alignment
Var. 1 Knowhow	.714	.404
Var.4 Learning Skills	.894	.151
Var. 6 Work alignment	.156	.847
Var.7 Dress code	.873	.229
Var. 8 Teamwork	.732	.401
Var. 9 Job satisfaction	.176	.844
Var. 10 Improvement	.765	.006

Note. Extraction Method: Principal Component Analysis. Rotation Method: varimax with Kaiser Normalization a. Rotation converged in 3 iterations.

Factor 1 considers propositions about personal development. In the first factor, we found a direct relationship between the field of work and professional qualification. Most respondents (68.12%) agreed that they have enough knowledge about their field of work, and 75.50% agreed that the learning process is necessary for workers to grow professionally. In this way, the employee can adapt to the organisational environment, acquire skills, and meet the organisation's needs. These two statements, represented by variables 1 and 4, have a positive and high strength of association, with a correlation coefficient of 0.7, considering a positive scale from 0 to 1.

Considering Variable 7, 72.48% of the respondents agreed that it is essential to take care of their appearance and wear appropriate clothing for the work environment. This statement has a positive and high strength of association, with a correlation coefficient of 0.8, considering the learning skills from Variable 4. Regarding Variable 8 (Teamwork), 65.26% of the respondents declared that working as a team and interacting with people is essential. Therefore, working as a team and interacting with other employees are considered strengths for this sample. Belinski and Martins (2020) claim that more significant interaction between members of an organisation increases the exchange of experience and cooperation between people, facilitating the creation and sharing of knowledge between employees. Also, this statement from Variable 8 has a positive and high strength of association, with a correlation coefficient of 0.7, considering the dress code from Variable 7. This affirmative demonstrates a concern for working in a group and being judged by appearance. By analysing Variable 10 (Improvement), 61.07% of the respondents agreed that, if given the opportunity, they would like to invest in knowledge and training courses. However, as Fritsch and Vitelli (2016) pointed out, many adults seek to work as soon as possible because they need to save money or pay for their household expenses. In this way, investments in professional training are momentarily left aside.

The concept of work ability aims to balance personal, mental, physical, and work values to improve individuals and the organisational environment. Considering Factor 1 and the work ability house model, it was possible to identify that this sample is on the second floor, focusing on training and obtaining skills in the best way possible.

Factor 2 considers propositions about work alignment. We found a direct relationship between work and satisfaction in this second factor. These two statements, represented by variables 6 and 9, have a positive and moderate strength of association, with a correlation coefficient of 0.7, considering a positive scale from 0 to 1. Most respondents (59.22%) agreed that their work is aligned with their vocation. And 57.77% of the respondents agreed that they are satisfied with their jobs. According to Ekhsan (2019, p. 1), "job satisfaction depends on what employees want from their work and what they will get from the job". Job satisfaction allows the employee to be motivated. This satisfaction can generate positive or negative consequences, depending on the organisational environment's influences. Satisfactory work means that they do something they like. Individuals will always seek professional improvement, but they can be more productive when they have work alignment and job satisfaction. And in the national reality, many workers responded that they were not satisfied with their careers or work because they had no other job opportunities. Considering Factor 2 and the work ability house model, it was possible to identify that these variables represent the third floor, linked to motivation and attitudes (satisfaction).

In the face of COVID-19, we identified determinant factors of human development and work ability according to this sample. We classified two significant factors, personal development and work alignment, representing the most relevant work ability criteria found through factor analysis. It is suitable for the employee's work ability continuously to improve knowledge (technical, personal or relationship skills). This statement allows the worker to be prepared for future changes and ensure the development of their abilities.

Estimations of Work Ability factors According to Gender and Age

It is then possible to explore the results relating to our four hypotheses. We investigated if there is a change in work ability's estimations regarding gender and age. We performed one-way ANOVA analysis, Kruskal-Wallis, and Bonferroni tests

to understand if there are significant differences of opinions between gender and age regarding estimations of work ability.

We related the sample's work ability factors to the gender variable aiming to identify significant differences in opinions between genders through ANOVA. We grouped the respondents into three categories about genders (Women - $N = 371$; Men - $N = 220$; Rather not say – $N = 5$). Firstly, we verified the data's homogeneity to consider the variables in one-way ANOVA and, if necessary, the Kruskal-Wallis test. We used Levene's test to verify the homogeneity of the data. When the homogeneity of the data has not been confirmed, we applied non-parametric tests because our data has an ordinal qualitative measurement level.

The p-values of five variables (1,4,6,7 and 8) are above 0.05; these values show that the data are likely homogeneous for these variables considering the homogeneity test; for this reason, we performed the ANOVA, Table 3 for these five variables. And regarding the variables with a p-value below 0.05 (variables 9 and 10), we applied the Kruskal-Wallis test.

According to Table 3 and contrasting to the alpha level of 0.05 (where $p < \alpha$), we accept the null hypothesis H0a because the respondents have no statistically significant difference opinions regarding variables 1, 4, 6 and 8. We performed the Bonferroni test as a post-doc analysis to investigate the differences between all groups in these four variables (1, 4, 6 and 8). We proved through the Bonferroni test that there is no difference of opinions for variables 1, 4, 6, and 8 between genders, classified as one (Women), two (Men), and three (Rather not say).

Table 4 shows the variables that lead us to reject or accept the hypothesis considering gender. As can be seen, the p-value of 0.036 regarding variable 10 (Improvement) lead us to reject the hypothesis of equality of means. Considering variable 9 (Job satisfaction), we can accept the hypothesis of equality of means (the significance level > 0.05). Considerations about the point of view regarding Variable 10 show that they slightly agree on the improvement they are willing to make. This explains the result where no statistical evidence of a difference between the variables considering the gender factor was identified.

We grouped the respondents into four age categories (1: 19-29 years old $N = 424$; 2: 30-39 years old $N = 102$; 3: 40-49 years old $N = 46$; 4: Over 50 $N = 24$). We performed a one-way ANOVA analysis and Kruskal-Wallis test to perceive significant differences in opinions considering the age factor. But firstly, we verified the data's homogeneity to consider the variables in one-way ANOVA. We used Levene's test to verify the uniformity of

Table 3

One-way ANOVA analysis considering gender

Variable	Groups	Sum of squares	$df1$	Mean square	F	Sig
Var. 1 Knowhow	Between Groups	4.909	2	2.454	1.456	**.234**
	Within Groups	999.286	593	1.685		
	Total	1004.195	595			
Var. 4 Learning Skills	Between Groups	2.784	2	1.392	.556	**.574**
	Within Groups	1485.706	593	2.505		
	Total	1488.490	595			
Var. 6 Work alignment	Between Groups	6.472	2	3.236	2.099	**.124**
	Within Groups	914.307	593	1.542		
	Total	920.779	595			
Var. 7 Dress code	Between Groups	15.945	2	7.973	3.964	**.019**
	Within Groups	1192.771	593	2.011		
	Total	1208.716	595			
Var. 8 Teamwork	Between Groups	.460	2	.230	.136	**.873**
	Within Groups	1003.156	593	1.692		
	Total	1003.616	595			

Table 4
Summary of the hypothesis test

Variables	Test	Sig	Decision
Var. 9 Job satisfaction	Kruskal-Wallis	0.524	Accept the hypothesis of equality of means
Var. 10 Improvement	Kruskal-Wallis	**0.036**	Reject the hypothesis of equality of means

data. The *p*-values of all five variables (1,4,6,7, 8 and 9) are above 0.05; these values show a tendency for data homogeneity; for this reason, we performed the ANOVA test in Table 5. And regarding the variable with a *p*-value below 0.05 (Var. 10), we applied the Kruskal-Wallis test (Table 6).

Table 5
One-way ANOVA analysis considering the age

Variable	Groups	Sum of squares	*df*1	Mean square	F	Sig
Var. 1 Knowhow	Between Groups	5.300	3	1.767	1.047	**.371**
	Within Groups	998.894	592	1.687		
	Total	1004.195	595			
Var. 4 Learning Skills	Between Groups	592	3	1.409	.562	**.640**
	Within Groups	595	592	2.507		
	Total	1.687	595	.		
Var. 6 Work alignment	Between Groups	4.228	3	1.316	.850	**.467**
	Within Groups	1484.262	592	1.549		
	Total	1484.490	595			
Var. 7 Dress code	Between Groups	592	3	.175	.086	**.968**
	Within Groups	595	592	2.041		
	Total	2.507	595			
Var. 8 Teamwork	Between Groups	3.949	3	439	.259	**.855**
	Within Groups	916.830	592	1.692		
	Total	920.779	595			
Var. 9 Job satisfaction	Between Groups	8.543	3	2.848	1.615	**.185**
	Within Groups	1043.786	592	1.763		
	Total	1052.329	595			

Table 6
Summary of the hypothesis test

Variables	Test	Sig	Decision
Var. 10 Improvement	Kruskal-Wallis	**0.857**	Accept the hypothesis of equality of means

We investigated the differences between all groups of variables considered in Table 5, and we evidenced through the Bonferroni test that there is no difference of opinions for any variable. Table 6 shows the variables that lead us to reject or accept the hypothesis regarding the age factor. As can be seen, the p-value of 0.867 regarding variable 10 (Improvement), lead us to leads us to accept the hypothesis of equality of means. In this statement, the respondents converge their opinions concerning improvements as the percentage of agreement (61.07%) proves they have the same point of view regarding this subject. Thus, if they had the opportunity and financial condition to improve their education, they would.

To sum up, we accept null hypothesis H0a considering gender because the respondents have no statistically significant different opinions considering the gender factor. And we accept null hypothesis H0b considering age because there is no statistical evidence of a difference between the variables considering the age factor.

Work Ability Factors Concerning Personal Development and Financial Aspects.

To answer our second research question, the structural equation modelling considers work ability factors related to personal development and work alignment. We intend to discover if work ability factors influence professional guidance and financial development factors. SEM improves the quality and accuracy of research involving measurements, increasing the credibility of the results and strengthening the contribution of studies to the literature. As stated by Costa et al. (2019, p. 488), "SEM is a method using multiple linear equations to include direct and indirect effects, as well as latent variables (i.e., variables not directly observed". We used a structure that identified the relationships between the investigated variables and the decision-making process. As shown in Figure 1 and considering the model fit analysis, the SEM above answers research question 2, according to the regression weights from the default model. We discovered that all variables (Variables 1, 4, 7, 8 and 10) positively impact F1 (Personal development).

The standardised regression weights can confirm this in Table 7, where estimate values between 0.3 and 0.5 are considered medium-sized effects. Therefore, the estimated values are above 0.5. Table 8 shows the regression weights from the default model from Factor 2 (Work Alignment). All variables (Variables 6 and 9) significantly impact F2.

This analysis ratifies the previous analysis, factor analysis and hypothesis test and demonstrates the alignment between the techniques covered. Variables 1, 4, 7, 8 and 10 directly affect Factor 1 (Personal development), and variables 6 and 9 directly affect Factor 2 (Work Alignment).

The Professional guidance factor involves the subsequent statements: PG1 (Achievement), PG2 (Education investment), PG3 (Professional education) and PG4 (Courses). The respondents agreed that all these variables are essential to the personal development of their careers. Considering the new factors approached: Professional guidance and Financial factor, in Table 9, we found that PG1 and PG4 have a medium-sized
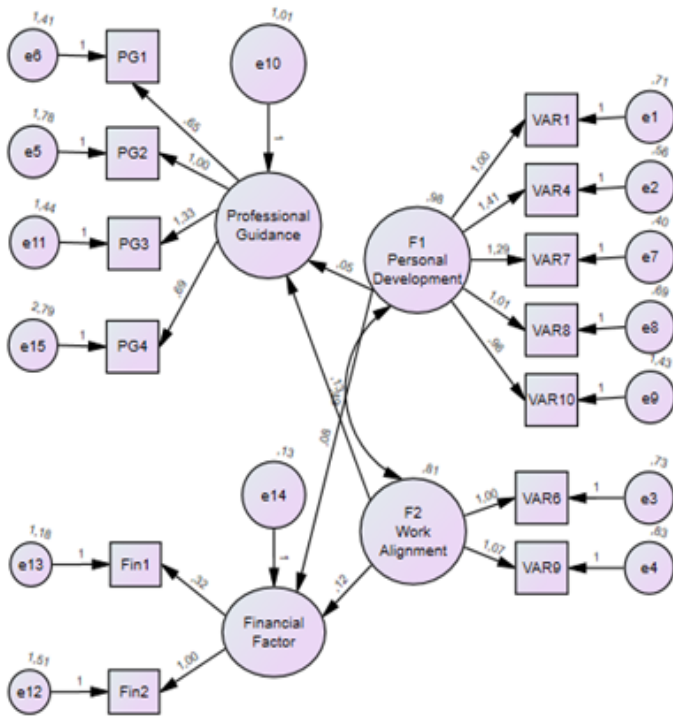
Figure 1. Structural Equation Model.

Table 7
Standardised regression weights from Factor 1 (Personal development)

Variables	←	Variables	Estimate
Var. 1	←	F1_Personal_Development	0.762
Var. 4	←	F1_Personal_Development	0.882
Var. 7	←	F1_Personal_Development	0.896
Var. 8	←	F1_Personal_Development	0.767
Var. 10	←	F1_Personal_Development	0.624

Table 8
Standardised regression weights from Factor 2 (Work Alignment)

Variables	←	Variables	Estimate
Var. 6	←	F2_Work_Alignment	0.725
Var. 9	←	F2_Work_Alignment	0.729

Table 9
Standardised regression weights from Professional guidance

Variables	←	Variables	Estimate
PG 1	←	Professional_Guidance	0.486
PG 2	←	Professional_Guidance	0.607
PG 3	←	Professional_Guidance	0.748
PG 4	←	Professional_Guidance	0.389

effect on the Professional guidance factor. And PG2 and PG3 have a high-sized impact on the Professional guidance factor.

In Table 10, regarding the Financial factor, we found that Fin 1 has a small-sized effect on the Financial Factor, and Fin 2 has a medium-sized impact on the Financial Factor. The Financial factor considers the subsequent statements: Fin 1 (Theoretical Finance knowledge) and Fin 2 (Empirical Finance knowledge). The respondents agreed that they neither have theoretical finance knowledge (39.42%) nor enough empirical finance knowledge (46.14%).

After this analysis, we observed that the Professional guidance and Financial development factors do not influence the work ability factor. Table 11 shows regression weight through p-values considering the default model.

Table 10
Standardised regression weights from Financial factor

Variables	←	Variables	Estimate
Fin 1	←	Financial_Factor	0.114
Fin 2	←	Financial_Factor	0.303

Table 11
Standardized regression weights from Professional guidance

Variables	←	Variables	p-value
Professional_Guidance	←	F1_Personal_Development	0.481
Professional_Guidance	←	F2_Work_Alignment	0.121
Financial_Factor	←	F1_Personal_Development	0.276
Financial_Factor	←	F2_Work_Alignment	0.177

In other words, considering professional guidance and personal development, the probability of getting a critical ratio as significant as (0.704) in absolute value is (0.481). By way of explanation, the regression weight for (F1_Personal_Development) in the prediction of (Professional_Guidance) is not significantly different from zero at the 0.05 level (two-tailed). Equally, the same analysis can be made for the other six variables. Considering professional guidance and work alignment, the probability of getting a critical ratio as significant as 1.552 and in absolute value is 0.121. Considering financial factor and personal development, the probability of getting a crucial ratio as substantial as 1.089 and in absolute value is 0.276. And considering financial factor and work alignment, the probability of getting a critical ratio as significant as 1.35, which in absolute value is 0.177.

To sum up, the variables considered by the Personal Development factor and Work alignment factor do not directly influence the Professional Guidance and Financial factors. In conclusion, to answer research question 2, the respondents consider essential the development of work ability factors (factors 1 and 2); nevertheless, they do not give the same importance to the factors related to professional guidance and financial factors. Consequently, there is no evidence to assert that work ability factors affect these Professional Guidance and Financial factors.

Discussion

This study investigated the work ability factors from the point of view of workers. The concept of work ability encourages the improvement of the organisational environment and human development. As Ilmarinen (2019) proposed in the work ability house model, we identified that the sample is situated on the second floor because the focus is on developing skills. Additionally, it is also possible to perceive characteristics of the third floor regarding motivation and attitudes (satisfaction) factors.

It is also crucial to be aware of employees' concerns about job satisfaction and personal goals. Every company can ensure improvements for their employees. On the other hand, those employees can improve their roles as better as possible. The development of skills may or may not be associated with job vocation. But, in unstable times, such as the COVID-19 pandemic, it is possible to pursue the ability to survive the crisis through flexibility and adaptation of traditional methods and ways of work. According to Ilmarinen and Von Bonsdorf (2015), work ability is the measure by which people can perform their function satisfactorily, an essential indicator of the sustainable employability of workers. Since COVID-19 and the high unemployment, an immediate adaptation for living and working

was necessary.

We have found through factor analysis two groups of work ability factors. We answered research question 1 by analysing the statistical accuracy of the judgments and estimations from different types of respondents. As a result, we concluded that personal development and work alignment represent the most relevant work ability criteria in this sample. Observations proved that the respondents always seek to improve their knowledge, technical skills, and relationship skill. It was also possible to identify the importance of job satisfaction as a criterion for professional improvement.

After preliminary observations from factor analysis, we evaluated the hypotheses through the judgments and estimations of gender (H0(a) e H1(a)) and age categories (H0(b) e H2(b)). We could not endorse H1(a) nor H1(b) because we found that the estimations of work ability do not change according to gender or age.

Studies regarding gender and ability to work do not show the same inequality results as studies on gender and wage disparities. As stated by Boström et al. (2012, p.13), when they studied changes in the work situation and work ability, they assumed that "no major gender differences were found in this report". The same findings are in the study of Padula et al. (2013, p. 4332), "age and gender did not influence the perception of ability to work". According to McKinsey Global Institute (2019, p. 93), "there are also many other programs and initiatives that aim to reduce gender inequality", considering gender and ability to work. The same condition is identified for the age factor. According to Converso (2018, p.8), the results confirmed H1, indicating that age is significantly and negatively associated with WA (Work Ability)". In other words, the age factor is negatively associated with work ability. These findings are consistent with the results found in our work.

Through a structural equation model analysis, we have answered research question 2 by analysing the relationship between work ability factors (personal development and work alignment) and two main factors: professional guidance and financial development factors. And we discovered that the variables considered by the work ability factors do not directly influence how they perceived the Professional Guidance and Financial factors.

The Professional Guidance factor was studied because, as stated by ILO (2020, p. 67), "the pandemic and resulting restrictive measures provided a new context for rethinking how career guidance provision is delivered". We found it interesting to relate this factor to work ability factors to prove the lack of a relationship between them.

According to Carpentieri, Wielgoszewska, Church and Goodman (2020, p.7), due to the coronavirus, "individuals positively or negatively affected financially was to some extent a matter of good or bad fortune, depending on the industry they and their families were working in". In addition to this, we can say that it also depends on where that individual is working. According to the World Economic Situation and Prospects Report (2021, p. 9), "unemployment rates remain high relative to pre-crisis levels in all developed countries. The COVID-19 crisis has also wreaked havoc on the labour markets in the developing world". However, the Financial factors presented in this study are not related to work ability factors. Our results show that knowing the skills needed to improve work ability factors does not necessarily improve financial condition. But the practical application of work ability factors can improve the individual's financial situation.

Studies on work ability factors are relevant for employees and employers interested in developing skills required by the market. Those factors must be observed and possibly adjusted to improve the personal abilities of workers. Identifying work ability factors in this study can promote a debate on how these factors can be observed in other aspects.

Our findings contribute to the research on work ability factors and our settlement about the non-attendance concerning our hypotheses. Results from different studies regarding gender and age are appropriate and can be investigated as constraints to new studies involving other income and job searching factors.

This study had some limitations. First, the study did not drive the sample using probabilistic forms; we opted for sampling directly working-aged people. The second limitation is the statistical methodologies because our sample was not probabilistic, but we used accepted statistical methods to manage the data correctly. The third limitation relates to generalisation as our work ability study reflects only the sample's opinions examined in the pandemic context of COVID-19 in Brazil. We suggest further studies to investigate the implication of our findings using other statistical methods, different types of samples, or a comparative analysis of data collected during and after the pandemic.

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