

Busu, Mihail; Gyorgy, Attila

Article

Modelling the impact of heavy work investments on employee's satisfaction

Amfiteatru Economic Journal

Provided in Cooperation with:

The Bucharest University of Economic Studies

Suggested Citation: Busu, Mihail; Gyorgy, Attila (2020) : Modelling the impact of heavy work investments on employee's satisfaction, Amfiteatru Economic Journal, ISSN 2247-9104, The Bucharest University of Economic Studies, Bucharest, Vol. 22, Iss. Special Issue No. 14, pp. 1068-1084,
<https://doi.org/10.24818/EA/2020/S14/1068>

This Version is available at:

<https://hdl.handle.net/10419/281543>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



<https://creativecommons.org/licenses/by/4.0/>

MODELLING THE IMPACT OF HEAVY WORK INVESTMENTS ON EMPLOYEE'S SATISFACTION

Mihail Busu^{1*} and Attila Gyorgy²

^{1),2)} University of Economic Studies, Bucharest, Romania

Please cite this article as:

Busu, M. and Gyorgy, A., 2020. Modelling the Impact of Heavy Work Investments on Employee's Satisfaction. *Amfiteatru Economic*, 22(Special Issue No. 14), pp. 1068-1084

DOI: 10.24818/EA/2020/S14/1068

Article History

Received: 29 June 2020

Revised: 8 August 2020

Accepted: 25 September 2020

Abstract

In this article, the authors develop an econometric model to determine the impact of the heavy work investment on employee's satisfaction. The data was collected using a questionnaire addressed to employees with higher level of education and at least one year of experience, within the specialized departments of multinational companies that offer consultancy and audit services in Romania and analyzed using Smart-PLS statistical software 3.3.2. Based on the literature in the field, the article identifies the determinants of the heavy work investment. These indicators are the independent variables that shape the impact of the heavy work investment on employee's performance and satisfaction. The findings confirm the theoretical aspects presented in the article, emphasizing that employee's satisfaction is the direct result of the collaboration of several factors, such as personal needs, workload, time spent at work, attitude to work and physical and mental condition. Identifying the drivers that contribute to increasing organizational performance is essential in the human resources management process, to shed light on positive aspects, such as employee satisfaction, rewarded for their work and, at the same time, to prevent the risk of overwork. The article contributes to the research theory by modelling the investment in work according to elements specific to human typologies, bringing a unique contribution in the form of practical inferences for the management of human resources.

Keywords: heavy work investment, work satisfaction, work dependence, econometric model, PLS-SEM

JEL Classification: O12, O15, C30, C83

* Corresponding author, **Mihail Buşu** – e-mail: mihail.busu@fabiz.ase.ro

Introduction

Research studies have revealed the complexity of the phenomenon of the heavy work investment, closely correlated with workaholism. Research studies in the field of neuroscience (Andreassen, 2014) found that work addiction is a worrying phenomenon, which can have destructive consequences on the individual. There is a fine line between work enthusiasts and work addicts, analyzed in this paper by the Heavy Work Investment (HWI) indicator, which divides human typologies into two categories, depending on the HWI level, respectively the workaholics with a negative HWI index and those involved with enthusiasm in professional activities, with a positive HWI index. As highlighted in the next section, the HWI concept has attracted pros and cons opinions in the literature. Therefore, this article aims to find the drivers underlying the HWI indicator, to capitalize on human potential, in the benefit of the individuals and the organization.

The influence of HWI factors on job satisfaction and organizational performance, in sections 2 and 3, is based on economic modelling of the impact of the heavy work investment. Employee's satisfaction for the work performed becomes a priority in the context of human resource management. The questionnaire addressed to the interviewees reflects the importance of organizing the activity in the form of projects, in terms of autonomy given to coordinators, flexibility and enhanced communication within the teams. The econometric study performed with the method Partial Least Square - Structural Equation Modelling (PLS-SEM) allows a relevant assessment of the degree of dependence between outcome variables, such as job satisfaction, with independent variables, such as number of hours allocated to work or workload, mood and individual physical condition.

The conclusions of the research papers in the field lead to the idea of extrapolating the HWI study for large communities, which would have in common the desire to work, regardless of the income, through the importance attributed to the professional activities carried out, known as work centrality. However, in the current macroeconomic context of the developed countries, more and more companies are becoming adept to a healthy and sustainable way of doing businesses, where overwork is not a long-term option. Empirical studies dealing with HWI modelling remain, however, limited. Therefore, in order to respond to the need to capitalize on the HWI indicator, while removing the risk factors, a detailed analysis of each influencing factor, essential within the organization's management, is required.

In this article, the authors focus on the answer to the question "*What is the impact of massive investment in labour on employee satisfaction?*", and, to answer this question, a quantitative analysis was conducted based on a survey drawn up on the basis of replies to a questionnaire. The statistical hypotheses formulated in the methodology section were validated using structural equations modelling. The satisfaction of the work performed was analyzed in the light of the HWI indicator by Schaufeli, Shimazu and Taris (2009). Identifying work satisfaction as a determinant for HWI is relevant in the human resource management process. The study conducted in this article, based on the survey, finds that activities grouped by projects increase autonomy, task identity and communication within project teams.

The purpose of this paper is to validate the causal relationship between the massive investment in work and the degree of employee satisfaction, by examining the data collected from audit and consulting companies in Romania. As such, the causal relationship between the HWI model and job satisfaction is assessed by using the structural equations

modelling, tested with the least partial squares method. The present paper continues with the review of the specialized literature, followed by the research methodology, where the research hypotheses are formulated and tested. The paper continues with a section of results and discussions, in which the main results of the article are discussed and compared with those of the literature. Discussions, limitations of the analysis and further research are presented in the conclusions section.

1. Literature review

The phenomenon called *work "addiction"* or "*workaholism*" was firstly observed by the American psychologist Wayne Oates (1971), who defines it as an uncontrollable process of continuous work. In academic language, work dependence is quantified by the Heavy Work Investment (HWI) indicator, which measures the effort and time allocated to work (Harpaz and Snir, 2003), as the main form of the behavioural model development, characterized by maximum involvement, with potential for physical and mental exhaustion (Fassel, 1990; Mazzetti, et al., 2014; Andreassen, 2015; Aziz and Burke, 2015; Shimazu, et al., 2015; Taris and Schaufeli, 2015; Shkoler, et al., 2017; Tziner, et al., 2018).

The importance given to work has been explored by many researchers in profile papers, and the finding that work plays a key role in personal life has been empirically supported in most industrialized countries (Mannheim, et al., 1997; Arvey, et al., 2004). In addition, other studies (Ishiyama and Kitayama, 1994; Barsade and Gibson, 2007) have shown that the emphasis on work is based on personal considerations, but also on external considerations, such as demographic, educational, industrial factors specific to the economic sector, related to the development of technology or the particularities of a culture (Tucker and Rutherford, 2005).

Starting with the importance given to work, Kaplan (1987) studied the causes that determine some lottery winners to continue working, despite the huge financial gains. Among these drivers, the main factors are education, job satisfaction and professional status. For example, among the people who remained involved in the activity are those with higher education, professionals or company managers. Moreover, the theory of the educational factor was developed in the research works of Harpaz (1990), while the psychological motivation of the desire to remain involved in the social-occupational field was the subject of sociological studies applied to a large community, representing the retired population, with a guaranteed source of income (Vecchio, 1980; Wang, et al., 2008; Highhouse, et al., 2010). Other author (Messenger, et al., 2007) made comparisons in terms of allocated working time between national models from Brazil, Chile, China, Czech Republic, Hungary, Korea, Jamaica, Malaysia, Mauritius, Mexico, Peru, Russia, Senegal and Tunisia, based on 14 studies. There is a tendency to reduce the number of hours, with significant regional differences, influenced by age and gender.

Messenger (2004) offers solutions to meet the need to balance the work schedule, versus free time. The author proposes five interconnected criteria for establishing an adequate work schedule, namely the protection of health at work and employee safety, a friendly environment, favourable to the development of activities, gender equality, all these contextual factors working together to increase productivity.

Attempts to reduce working hours in developing countries have been undermined for practical perspective, due to the need for workers to work extra to ensure adequate earnings. Although the promotion of working time flexibility is often proposed as an

alternative to the long work schedule, in policy documents, which governs contractual labour relations, these flexibility measures, as well as part-time work, are not used in practice, due to the fact that they reduce household income, in the context of low wages and standard of living, compared to the developed countries. According to OECD (2013) study, reconciling work and family life should be a prominent concern of the economic and social policies.

By the development of the conceptualization of HWI theory and research, the effects of the behaviour of the workaholics on themselves or in relation to those with whom they interact were underlined. The observations collected indicate two HWI typologies, which are influencing HWI in a different way, the first being characterized by a negative attitude of the individual towards him/herself, while the activity was carried out and a worsening of the interaction with the organizational or social environment (Dembe, et al., 2005; Iwasaki, et al., 2006; Raediker, et al., 2006), while the second typology is characterized by an attitude positive towards oneself and the organizational framework, manifested by enthusiasm for the team and the activity carried out (Snir and Zohar, 2008). At the same time, other studies (Feldman and Russell, 1998; Barsade and Gibson, 2007) have shown that employees with high levels of emotional intelligence and able to capitalize on their strengths are also better suited to develop and maintain a harmonious passion for their work. Consequently, these employees may experience a positively correlated HWI index compared to those who are dependent on work, but who show a hostile attitude towards the organization, the work carried out, as well as in interpersonal relationships. Therefore, an HWI filled with enthusiasm for work can benefit the individual and society at large (Spence and Robbins, 1992; Kanai, et al., 1996; McMillan, et al., 2002; Vallerand, et al., 2003; Ersoy-Kart, 2005).

Thus, the factors underlying the determination of HWI can be internal in nature, which are largely related to individual traits that define the type of personality (i.e. competitiveness, enthusiasm, energy, job satisfaction, vocation for professional activity, ethics etc.) or may be external in nature, depending on the objective pursued, education, sociological factors, organizational model and financial situation (for example, the desire to be promoted in a career, the need to support a family with several member etc.). In addition, behavioural typologies often identify types of addiction, positive and negative. Positive examples include *achievement-oriented behaviours*, analyzed by Scott (1997) and *workaholics*, whose behaviours were studied by Spence and Robbins (1992). Employment can be defined as “a positive, satisfying mood that is characterized by vigour, dedication and absorption” (Schaufeli, et al., 2002, p.73). The results of the research are in line with a taxonomy of work-related well-being, presented by Schaufeli (2013), who stated that employees trained at work, with a positive HWI index, experience pleasant emotions, while employees dependent on work, with a HWI negative index, may develop conflicting states in interpersonal relationships.

The HWI quantification methodology has been developed since the late 1980s, starting with the WorkBAT test (Workaholism Battery - Spence and Robbins, 1992), the work addiction risk test, WART (Work Addiction Risk Test - Robinson, 1999), DUWAS (Dutch Work Addiction Scale - Schaufeli, Shimazu and Taris, 2009) and BWAS (Bergen Work Addiction Scale Andreassen, et al., 2012). Job satisfaction is considered a psychological factor underlying productivity, being correlated with increased turnover, as indicated by many research studies in the field (Hom, et al., 1992; Tett and Meyer, 1993; Lee, et al., 1999).

2. Research Methodology

Statistical hypotheses were inferred from the literature. Thus, while Ross and Zander (1957) consider that personal needs have a positive impact on employee's satisfaction, Roelen, et al. (2008) demonstrate that the workload is a decisive factor in terms of job satisfaction. At the same time, Possemier and Plantenga (2011) argue that employee's satisfaction is primarily a result of the time spent at work, and Thorsteinson (2003) considers that there is a close correlation between work attitude and job satisfaction. Last but not least, physical and mental state is one of the prerequisites for a good mood and job satisfaction (Koustelios and Bagiatas, 1997).

Thus, in order to achieve an economic modelling of the HWI impact on the employee's satisfaction, the following five statistical hypotheses were formulated:

- **H₁**: Personal economic or professional needs have a significant impact on job satisfaction;
- **H₂**: Workload has a positive impact on job satisfaction;
- **H₃**: The time allocated to work has a positive influence on the degree of job satisfaction;
- **H₄**: The attitude towards the work performed has a positive impact on the degree of job satisfaction;
- **H₅**: Physical and mental states have a significant impact on the degree of job satisfaction.

The objective of this paper is to validate the conceptual model by quantitative econometric analysis of the data collected through a questionnaire. The study also analyses the impact of the econometric model, presented in the next section, represented by personal needs, workload, time allocated to work, attitude towards work and physical and mental condition on performance and job satisfaction.

The questionnaire was addressed to managers and employees with higher education and at least one year of experience, within the specialized departments of multinational companies from Romania, that offer consulting and audit services. This sector was selected because it is the area in which the degree of investment in labour is one of the highest. The targeted companies are the biggest in the Romanian audit and consultancy and the respondents were selected by the method of systematic random stratification. Both managers and employees, as project coordinators, were selected in the sample in order to have a broader perspective on job satisfaction. Kadam and Bhalerao (2010) consider that, in the case of an unknown population, for a 95% confidence interval and a maximum error of $\pm 3\%$, the sample size must be at least 385 respondents. Thus, data were collected from 450 respondents, out of which 410 were valid, whereas 40 questionnaires were incomplete or incorrectly completed. The answers to the questions in the questionnaire were coded using a 7-point Likert scale, where the choices ranged from *very little* = 1 to *very much* = 7. The questionnaire was pre-tested to ensure that the format, language and order of the questions were appropriate.

The distribution of the respondents in the sample, depending on the position they hold within the selected company, could be seen in table no. 1.

Table no. 1. Distribution of the respondents in the sample

	Number of selected respondents
Execution	182
Management	228
Total	410

As can be seen from the table above, the sample consisted of 410 managers and employees from the analyzed enterprises, stratified by sex, income, age and level of education, who were interviewed directly, the questionnaire containing 30 questions.

For the data collection, the method of systematic stratified sampling was used, using a questionnaire with both closed and open questions. The data collection took place between February 1 and March 30, 2020. The main problem in data collection was the reluctance of respondents, at the level of execution, to complete questionnaires. In order to eliminate the concerns regarding the method of data collection, the information was anonymized and presented in an aggregated manner, and personal data were deleted. The main objectives pursued in conducting the study were: determining personal economic or professional needs and the physical and mental state of the interviewee.

To analyze the impact of heavy work investment on the employee's satisfaction, a quantitative analysis based on a survey was conducted using a questionnaire. The statistical hypotheses described above were tested using the Partial Least Square - Structural Equation Modelling (PLS-SEM) method, and the data were analyzed using the SmartPLS 3.3.2 statistical software (Ringle, 2020).

Starting with the models described in the literature, the following five proxy variables were considered successful drivers in terms of model implementation (Table no. 2): "Personal economic or professional needs" (Marimuthu, et al., 2009; Cho, et al., 2006), "Workload" (Foglia and Comparetti, 2014; Kalchschmidt and Zotteri, 2005), "Working time" (Salvador et al., 2001; Abdallah and Matsui, 2007), "Attitude towards work performed" (Ahmad and Shafique, 2019) and "Physical and mental state" (Diniz, et al., 2007). The scale used to describe the items was Likert in 7 points.

Table no. 2. Description of the variables in the model

1. Personal economic or professional needs (NP)	
NP_1	The importance given to the professional career.
NP_2	Existence of career development plans in the near future.
NP_3	Overtime is remunerated in proportion to the effort made.
NP_4	A large amount of the budget is allocated to dependents.
NP_5	Existence of bank loans contracted during the activity within the enterprise.
2. Workload (VM)	
VM_1	The solution of the received works exceeds the normal time of 8 hours daily.
VM_2	The assigned tasks exceed in complexity and / or volume the average number of works received by the other departments in the company.
VM_3	The large number of tasks received distracts attention
VM_4	The complexity and / or the large number of works that come back makes us feel overwhelmed.
3. Working time (TM)	
TM_1	The work schedule is flexible.
TM_2	Work tasks can be accomplished by working from home.
TM_3	The number of hours worked daily exceeds 8 hours.

4. Attitude towards the work	
AM_1	Existence of dependence for the work performed.
AM_2	The existence of states of stress or the feeling of pressures in solving your tasks.
AM_3	The work done brings satisfaction.
AM_4	The work done in your tasks involves passion.
5. Physical and mental condition	
SF_1	In the last years of activity there have been diseases caused by stress.
SF_2	Existence of a high level of physical exhaustion
SF_3	Mental pressure is felt every working day

The independent variables described in Table no. 2 is the latent variables of the model, while the reflexive dependent variable is HWI. This is described in Table no. 3 and is determined by five proxy variables: "Degree of satisfaction with the workplace", "Degree of identification with the workplace" (Boles, et al., 2001), "Mental, emotional, workplace comfort", "Pride to be part of the organizational team" and "Degree of professional achievement" (Motowidlo and Kell, 2012).

Table no. 3. Description of the dependent variable

Endogenous variable	
HWI_1	Degree of satisfaction with the workplace.
HWI_2	Psychic, emotional comfort at work.
HWI_3	The pride of being part of the organizational team.
HWI_4	Degree of identification with the job.
HWI_5	Degree of professional achievement.

According to Weiner (1985), if the independent variables act negatively on the dependent variables that form HWI, we are in the situation of workaholism, if they act positively, we are in the situation of employees trained positively in work activities.

The dependent variable and the independent variables, described above, lead to the formation of the structural model (figure no. 1).

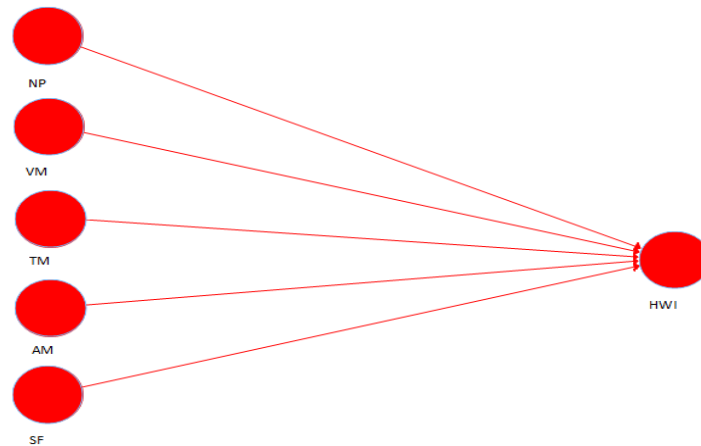


Figure no. 1. The structural model that incorporates the modelling of the impact of massive investments in labour satisfaction

The Model will be tested and then validated in the following section.

3. Results and discussions

Before the actual analysis of the model, the degree of significance of the variables of the conceptual model is checked. Thus, the validity, reliability and internal consistency of the collected data are analyzed. For this, the coefficients *Cronbach's Alpha* and *Dillon-Golsteins' rho* are calculated and interpreted (Tenenhaus, et al., 2005). Table no. 4 shows the values of these indicators.

Table no. 4. Reliability and validity of the model's variables

Variable	Cronbach's Alpha	Dillon Golsteins' rho	Composite Reliability	AVE	VIF
NP	0.808	0.738	0.732	0.812	2.205
VM	0.842	0.786	0.748	0.846	1.612
TM	0.732	0.712	0.829	0.723	1.521
AM	0.741	0.732	0.690	0.693	2.703
SF	0.762	0.744	0.671	0.634	2.412

*AVE = Average Variance Extracted, **VIF = Variance Inflection Factor.

Source: Data analysis was performed by the authors using SmartPLS software 3.3.2.

Table no. 4 shows that the VIF (Variance Inflection Factor) values related to the latent variables are lower than 5. According to Hair et al. (2013) show that there are no problems of collinearity between the independent variables in the model. It can also be seen that the values of the Cronbach's Alpha and Dillon-Golsteins' ρ coefficients for the 5 independent variables have values greater than 0.7. Thus, we can conclude that the independent variables in the model are significant.

The econometric study was performed using the PLS-SEM method. It consists of the analysis of two sub-models, namely the measurement model, the "outer model" and the structural model, the "inner model". The PLS-SEM method was chosen to perform the data analysis, being preferred to other similar methods, such as "Covariance Based - Structural Equation Modelling" (CB-SEM), because it is less sensitive to asymmetric distributions, small samples or the presence of multicollinearity, but at the same time, it is even more robust (Hair, et al., 2013).

3.1. The Measurement Model

The measurement model was evaluated using the convergent and discriminant validity method. Mathematically, the relationship between latent and reflexive variables can be determined using SEM (Jackson, 1969).

$$\{y = \Omega_y \delta + \varepsilon_y \quad (1)$$

$$\{x = \Omega_x \theta + \varepsilon_x \quad (2)$$

where:

δ is the latent dependent variable;
 θ is the latent independent variable;
 x and y are the observed variables;
 Ω_x and Ω_y are the matrix coefficients;
 ε_x and ε_y are the residual variables.

3.1.1. Convergent validity

Nacaskul (2017) states that convergent validity must be examined when a latent variable explains a statistically significant part of the variation of its constructs. In Figure no. 2, one may observe that the coefficients related to the variables from the measurement model are obtained with the help of SEM-PLS equations.

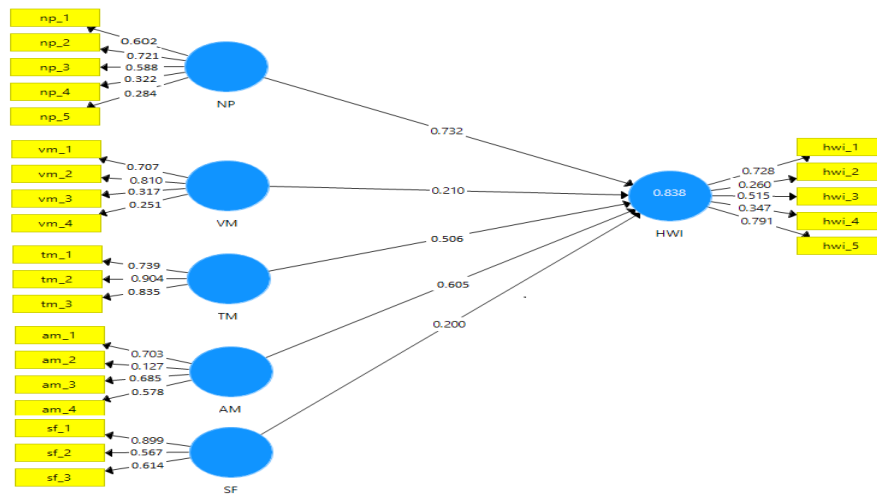


Figure no. 2. PLS-SEM 1 Measurement Model

Source: Data analysis was performed by the authors using SmartPLS software 3.3.2.

Chin (2010) considers that constructs for which the values of the coefficients are less than 0.5 should be excluded from the measurement model. Consequently, we exclude the variables from the model: np_4, np_5, vm_3, vm_4 and am_2. After excluding these variables from the model, using the PLS-SEM equations and using the SmartPLS 3.3.2 software, we obtained the second measurement model.

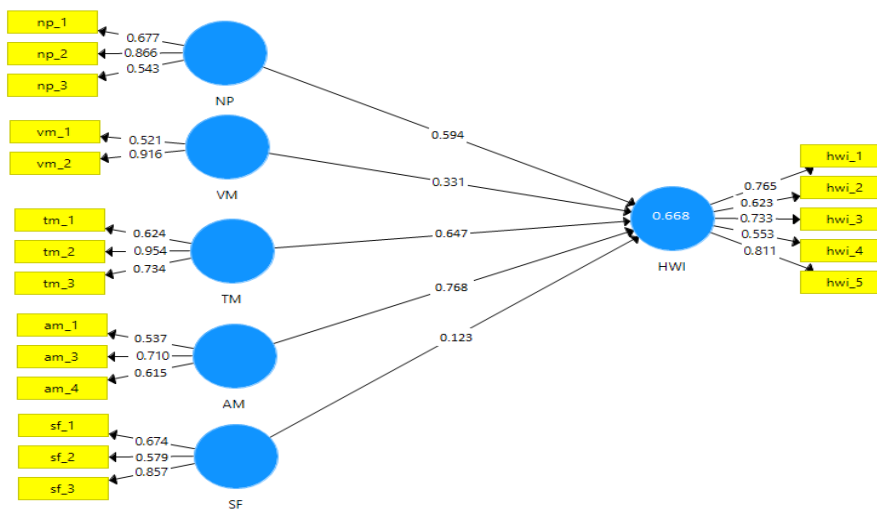


Figure no. 3. PLS-SEM 2 Measurement Model

Source: Data analysis was performed by the authors using SmartPLS software 3.3.2.

As it could be seen in the figure no. 3, the values of all the coefficients of the reflexive variables in the model are greater than 0.5, which means that all these coefficients are valid. Thus, the convergent validity of the model is confirmed.

3.1.2. Divergent Validity

Divergent validity can be tested using the *Average Variance Extracted* (AVE) indicator. Fornell and Larker (1981) state that if the square root of the values of the correlation coefficients between the latent variables is lower than the values of the AVE indicators related to the latent variables, then the discriminant validity is confirmed. In table no. 5 these values can be observed.

Table no. 5. Correlation matrix between the latent variables

Latent variables	AVE	Square root of the correlation coefficients between the latent variables				
		NP	VM	TM	AM	SF
NP	0.812	1				
VM	0.846	0.619	1			
TM	0.723	0.680	0.509	1		
AM	0.693	0.531	0.505	0.541	1	
SF	0.634	0.578	0.572	0.588	0.609	1

*AVE = Average Variance Extracted.

Source: Data analysis was performed by the authors using SmartPLS software 3.3.2.

As can be seen in the table above, the square roots of the correlation coefficients are smaller than the AVE indicator values for all latent variables, which confirms the discriminant validity of the measurement model.

3.2. The Structural Model

The structural model, *inner model*, was described in Figure no. 2. It shows us the connection between the exogenous variables in the model and the endogenous variable. The structural model (Claes and Cha, 1994) is described by the following equation:

$$\delta = \Gamma\delta + \Lambda\phi + \Sigma \quad (3)$$

where:

- δ - the vector related to the endogenous latent variables;
- ϕ - the vector related to the exogenous latent variables;
- Σ - the vector related to the residual variable;
- Λ and Γ - path coefficient matrices.

The values of the coefficients of the structural model are estimated using structural equations. The value of R-square is 0.668, which means that 66.8% of the variability of dependent variables is explained by the model. Regarding the estimated values of the coefficients of the structural model, we note that all are positive, which means that all latent variables have a positive impact on HWI. Thus, out of the five indicators, the variable with the greatest impact on HWI is *attitude towards work* (factor 0.768), followed by *working time* (factor 0.647), *personal needs* (factor 0.594), *workload* (factor 0.331) and *physical and mental condition* (factor 0.123). The reflexive indicators of the dependent variable HWI

have values higher than 0.5, which means that the variables (hwi_1, hwi_2, hwi_3, hwi_4 and hwi_5) are statistically significant. The high values of the reflexive variables, namely *Degree of satisfaction at work*, *Degree of professional achievement* show us that satisfaction and the feeling of professional achievement are well represented by the two indicators. In general, multiple factors improve model performance and increase reliability compared to single factors. In this model, the dependent variable is composed of five variables. As with formative variables, a reflective variable has a greater impact if it has high values of coefficients, reflecting stronger measurement paths. This is confirmed by the high values of the five coefficients of the dependent variables.

In addition, to test the six statistical hypotheses which were described in the previous section, a Bootstrap Test was performed on a sample of 300 respondents to generate the values of the t test (t-test) and the standard deviations (standard deviation) of the model parameters. According to statistical theory, bootstrapping allows the allocation of precision measurements to sample estimates. The results regarding the testing of the statistical hypotheses can be observed in table no. 6.

Table no. 6. Hypotheses testing results

Hypotheses	Coefficients	Standard error	t-value	P-value
H ₁ : Personal needs → HWI	0.594	0.342	3.267	0.023
H ₂ : Workload → HWI	0.331	0.468	2.986	0.046
H ₃ : Time at work → HWI	0.647	0.421	3.567	0.013
H ₄ : Attitude → HWI	0.768	0.509	4.132	0.006
H ₅ : Physical and mental condition → HWI	0.123	0.247	1.289	0.238

At a significance level of 95%, assumptions for which the value of p-value is less than 0.05 are validated, while others for which the values of p-value are greater than 0.05 are not. Thus, we can conclude that hypotheses H₁, H₂, H₃ and H₄ are valid, while H₅ is not. These results confirm the studies according to which personal needs, workload, time spent at work and attitude towards work have a significant impact on job satisfaction (Poikkeus, et al., 2020; Liss, et al., 2018), but invalidates the assumption that physical condition is an important factor of job satisfaction and work performances (Pi, et al., 2016). Thus, we can say that economic or professional needs, workload, time spent at work, attitude towards work and the physical and mental state of the employee are determining factors in terms of HWI.

These results, from the perspective of HWI, are in line with other previous studies on HWI, both in Romania and in other Central and Eastern European (CEE) countries. Thus, several studies in CEE countries indicate that employees (from these countries) tend to invest heavily in work. The large-scale incidence of high workload in CEE countries is supported by Taipale, et al. (2011) regarding the demand for jobs in eight European countries. The incidence was particularly high in Bulgaria and Hungary (as well as Sweden, Germany and the United Kingdom), and the high volume of work proved to be a strong predictor of job satisfaction in these countries (Schaufeli and Bakker 2004).

With respect to Romania, previous studies (Butucescu and Uscătescu, 2013) regarding the impact of investments in labour on employee satisfaction have indicated that the HWI index for Romanian employees is significantly influenced by social, economic status and demographic factors. According to the study, Romanian employees in the private sector have a higher degree of job satisfaction than those working in the public sector.

Conclusions

Starting with the economic modelling to determine the impact of the heavy work investment on the work satisfaction using structural equations SEM-PLS, this research paper identifies and evaluates the relationship between the determinants of the conceptual management model in analyzing the impact of the heavy work investment on satisfaction and employee's satisfaction. The results indicate that a significant proportion of the variability of the dependent variables is explained by the independent latent variables. Attitude towards work is thus one of the main criteria that influences the degree of employee satisfaction and their performance. Also, two other important factors that converge towards a high level of performance refer to the time allocated to the work and the workload. The results of the evaluation take into account other criteria, such as personal economic or professional needs and the physical and mental condition of employees.

Analyzing the results of the questionnaire in terms of modelling the variables, it can be noted that the evaluation of the impact of some determinants for the HWI indicator is essential in the management of management processes. The success of a process depends on the extent to which the organization, knowing the impact factors highlighted in section 3, acts to reduce or minimize the risks of physical and/or mental exhaustion of employees, with a large volume of work and excessive time allocated over the program. Early identification of these risk factors can help the organization plan and distribute specific activities in a balanced way. The intervention of the organization in order to correct some deviations can have the expected positive effects both in terms of performance obtained by the organization and in terms of human resources, engaged in activities.

In the presented model, the results of the study, analyzed using the modelling of structural equations, converge to the conclusions of the relevant studies in the literature, emphasizing that only in the case of passionate employees, the determinants of the heavy work investment can positively influence satisfaction and growth of the performance of organizations in Romania. The positive correlation could be attributed to the fact that the respondents were mostly leaders, which explains their commitment to the projects carried out, leading to outstanding professional results at the organizational level. Among the practical implications of the study results are the performances of the human factor, rewarded by the organization, which contributes to creating the employee profile and shows a positive attitude towards the work done.

Thus, from the analysis of the model, it is highlighted that we are in the situation of employees positively trained in the activities carried out (work engagement), which, also, could be considered a limitation of the model, as the questionnaire was addressed mainly to people with management positions that developed a positive attitude towards work and determined, implicitly, a positive HWI indicator, indicating on the high degree of satisfaction and, implicitly, on the performance.

Another limitation of this study is the relative reduced number of survey respondents. Other limitations of this research could be related to the subjective responses of the respondents and the number of constructs and reflexive variables. These limitations could be overcome in future research by increasing the sample size and balancing it between the level of execution and management, as well as by completing the number of constructs and reflexive variables, respectively by introducing open-ended questions in the questionnaire.

Further studies on the modelling of the impact of massive investment in labour on employee satisfaction and organizational performance should be extended to other

professional domains and research may include some likely macroeconomic effects. Moreover, future research could analyze changes in respondents' work habits, in order to develop the current model. In addition, in terms of external factors, the model developed in this article could benefit from an extension by analyzing how HWI acts, in different organizational settings, based on variables, such as type of work, type of requirements and balance of resources, as well as work settings that reflect variations in work culture and management, such as the type of industry, public versus private organization, teamwork versus authoritarian management.

References

- Abdallah, A.B. and Matsui, Y., 2007. JIT and TPM: Their relationship and impact on JIT and competitive performances. In: *The 9th Conference of the International Decision Sciences Institute (DSI)*. Bangkok, Thailand, pp.1-18.
- Ahmad, B. and Shafique, M., 2019. Impact of Manager's Emotional Intelligence on Subordinate's Work Attitude and Work Outcome. *Pakistan Business Review*, 20(3), pp.573-581.
- Andreassen, C.S., 2015. Online social network site addiction: A comprehensive review. *Current Addiction Reports*, 2(2), pp.175-184.
- Andreassen, C.S., Griffiths, M.D., Hetland, J. and Pallesen, S., 2012. Development of a work addiction scale. *Scandinavian Journal of Psychology*, 53(3), pp.265-272.
- Arvey, R.D., Harpaz, I. and Liao, H., 2004. Work centrality and post-award work behavior of lottery winners. *The Journal of Psychology*, 138(5), pp.404-420.
- Aziz, S. and Burke, R.J., 2015. *Personality factors, workaholism, and heavy work investment*. [online] Available at: <<https://psycnet.apa.org/record/2014-34160-002>> [Accessed 18 May 2020].
- Barsade, S. and Gibson, D., 2007. Why does affect matter in organization? *Academy of Management Perspective*, 21(1), pp.36-59.
- Boles, J.S., Howard, W.G. and Donofrio, H.H., 2001. An investigation into the inter-relationships of work-family conflict, family-work conflict and work satisfaction. *Journal of Managerial Issues*, 13(3), pp.376-390.
- Butuceanu, A. and Uscătescu, L., 2013. What does the Romanian workaholic look like? A first glimpse into the links between workaholism and employee characteristics; a validation attempt of DUWAS scale. *Human Resources Psychology/Psihologia Resurselor Umane*, 11(1), pp.17-32.
- Chin, W.W., 2010. How to write up and report PLS analyses. In: Esposito Vinzi V., Chin W., Henseler J., Wang H. (eds) *Handbook of Partial Least Squares* (655-690). Springer: Berlin/Heidelberg, Germany.
- Cho, S., Woods, R.H., Jang, S.S. and Erdem, M., 2006. Measuring the impact of human resource management practices on hospitality firms' performances. *International Journal of Hospitality Management*, 25(2), pp.262-277.
- Claes, F. and Cha, J., 1994. Partial least squares. *Advanced Methods of Marketing Research*, (64)46, pp.52-78.
- Dembe, A.E., Erickson, J.B., Delbos, R.G. and Banks, S.M., 2005. The impact of overtime and long work hours on occupational injuries and illnesses: new evidence from the United States. *Occupational and Environmental Medicine*, 62(9), pp.588-597.

- Diniz, B.S., Yassuda, M.S., Nunes, P.V., Radanovic, M. and Forlenza, O.V., 2007. Minimal State Examination performance in mild cognitive impairment subtypes. *International Psychogeriatrics*, 19(4), pp.647-656.
- Dinu, V., 2017. Total quality management: A way to manage organizations centred on quality. *Amfiteatru Economic*, 19 (Special Issue No. 11), pp.936-938.
- Ersoy-Kart, M., 2005. Reliability and validity of the workaholism battery (Work-BAT): Turkish form. *Social Behavior and Personality: An International Journal*, 33(6), pp.609-618.
- Fassel, D., 1990. *Working ourselves to death: The high cost of workaholism, the rewards of recovery*. Harper San Francisco. [online] Available at: <https://www.goodreads.com/book/show/331727.Working_Ourselves_to_Death> [Accessed 23 April 2020].
- Feldman, B. and Russell, J.A., 1998. Independence and bipolarity in the structure of current affect. *Journal of Personality and Social Psychology*, 74(4), pp.967-984.
- Foglia, P. and Comparetti, M., 2014. A workload independent energy reduction strategy for D-NUCA caches. *The Journal of Supercomputing*, 68(1), pp.157-182.
- Fornell, C. and Larcker, D.F., 1981. Structural equation models with unobservable variables and measurement error: Algebra and statistics. *Journal of Marketing Research*, 18(1), pp.382-388.
- Hair, J.F., Ringle, C.M. and Sarstedt, M., 2013. Partial least squares structural equation modeling: Rigorous applications, better results and higher acceptance. *Long Range Planning*, 1(46), pp.1-12.
- Harpaz, I., 1990. The importance of work goals: An international perspective. *Journal of International Business Studies*, 21(1), pp.75-93.
- Harpaz, I. and Snir, R., 2003. Workaholism: Its definition and nature. *Human Relations*, 56(3), pp.291-319.
- Highhouse, S., Zickar, M.J. and Yankelevich, M., 2010. Would you work if you won the lottery? Tracking changes in the American work ethic. *Journal of Applied Psychology*, 95(2), p.349.
- Hom, P.W., Caranikas-Walker, F., Prussia, G.E. and Griffeth, R.W., 1992. A meta-analytical structural equations analysis of a model of employee turnover. *Journal of Applied Psychology*, 77(6), p.890.
- Iwasaki, K., Takahashi, M. and Nakata, A., 2006. Health Problems due to Long Working Hours in Japan: Working Hours, Workers' Compensation (Karoshi), and Preventive Measures. *Industrial Health*, 44(4), pp.537-540.
- Jackson, D.N., 1969. Multimethod factor analysis in the evaluation of convergent and discriminant validity. *Psychological Bulletin*, 72(1), p.30.
- Kalchschmidt, M.G.M. and Zotteri, G., 2005. The impact of organizational structures within forecasting practices and companies' performances. In: Demeter, K., (ed.). *Operations and Global Competitiveness*, OOK Press Ltd, Hungary, pp.1189-1200.
- Kadam, P. and Bhalerao, S., 2010. Sample size calculation. *International Journal of Ayurveda Research*, 1(1), pp.55-57. doi: 10.4103/0974-7788.59946.
- Kanai, A., Wakabayashi, M. and Fling, S., 1996. Workaholism among employees in Japanese corporations: An examination based on the Japanese version of the Workaholism Scales. *Japanese Psychological Research*, 38(4), pp.192-203.

- Kaplan, H.R., 1987. Lottery winners: The myth and reality. *Journal of Gambling Behavior*, 3(3), pp.168-178.
- Koustelios, A.D. and Bagiatis, K., 1997. The Employee Satisfaction Inventory (ESI): Development of a scale to measure satisfaction of Greek employees. *Educational and Psychological Measurement*, 57(3), pp.469-476.
- Kristensen, K. and Eskildsen, J., 2010. Design of PLS-based satisfaction studies. In: *Handbook of Partial Least Squares*, Springer: Berlin/Heidelberg, Germany, pp.247-277.
- Lee, T.W., Mitchell, T.R., Holtom, B.C., McDaniel, L. and Hill, J.W., 1999. Theoretical development and extension of the unfolding model of voluntary turnover. *Academy of Management Journal*, 42(4), pp.450-462.
- Liss, A., Alian, A.Y., Wennström, J.L. and Abrahamsson, K.H., 2018. Professional competencies and work- related support in relation to periodontal therapy and work satisfaction: A questionnaire study among Swedish Dental Hygienists. *International Journal of Dental Hygiene*, 16(3), pp.349-356.
- Mannheim, B., Baruch, Y. and Tal, J., 1997. Alternative models for antecedents and outcomes of work centrality and job satisfaction of high-tech personnel. *Human Relations*, 50(12), pp.1537-1562.
- Marimuthu, M., Arokiasamy, L. and Ismail, M., 2009. Human capital development and its impact on firm performance: Evidence from developmental economics. *Journal of International Social Research*, 2(8), pp.265-272.
- Mazzetti, G., Schaufeli, W.B. and Guglielmi, D., 2014. Are workaholics born or made? Relations of workaholism with person characteristics and overwork climate. *International Journal of Stress Management*, 21(3), pp.227-254.
- McMillan, L.H., Brady, E.C., O'Driscoll, M.P. and Marsh, N.V., 2002. A multifaceted validation study of Spence and Robbins'(1992) Workaholism Battery. *Journal of Occupational and Organizational Psychology*, 75(3), pp.357-368.
- Messenger, J.C., 2004. *Working time and workers' preferences in industrialized countries: finding the balance* (Vol. 50). Routledge. [online] Available at: <https://www.ilo.org/global/publications/ilo-bookstore/order-online/books/WCMS_091015/lang--en/index.htm> [Accessed 11 June 2020].
- Messenger, J. C., Lee, S. and McCann, D., 2007. *Working time around the world: Trends in working hours, laws, and policies in a global comparative perspective*. Routledge. [online] Available at: <https://www.ilo.org/wcmsp5/groups/public/@dgreports/@dcomm/@publ/documents/publication/wcms_104895.pdf> [Accessed 15 March 2020].
- Motowidlo, S.J., 2003. Job performance In: Borman, W.C., Ilgen, D.R., & Kliminski, R.J. (Ed.). *Handbook of Psychology: Industrial and Organizational Psychology*. 12 (pp.39-53). Hoboken, NJ: Wiley.
- Nacaskul, P., 2017. *Financial Risk Management and Sustainability-The Sufficiency Economy Philosophy Nexus*. [online] Available at: <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3057886> [Accessed 15 May 2020].
- Oates, W.E., 1971. *Confessions of a workaholic: The facts about work addiction*. World Publishing Company. [online] Available at: <<https://catalogue.nla.gov.au/Record/2687285>> [Accessed 12 May 2020].

- OECD, 2013. *Which countries work the longest hours?* Worlds Economic Forum. [online] Available at: <<https://www.weforum.org/agenda/2015/08/countries-working-the-longest-hours/>> [Accesses 20 April 2020].
- Pi, C.T., Chiu, S.K. and Lin, J.Y., 2016. Effect of Employee Work Stress, Work Satisfaction and Work Values on Organizational Commitment. *Business & Entrepreneurship Journal*, 5(1), pp.25-45.
- Poikkeus, T., Suhonen, R., Katajisto, J. and Leino-Kilpi, H., 2020. Relationships between organizational and individual support, nurses' ethical competence, ethical safety, and work satisfaction. *Health Care Management Review*, 45(1), pp.83-93.
- Possenriede, D.S. and Plantenga, J., 2011. Access to flexible work arrangements, working-time fit and job satisfaction. *Discussion Paper Series/Tjalling C. Koopmans Research Institute*, 11(22), pp.1-24.
- Raediker, B., Janssen, D., Schomann, C. and Nachreiner, F., 2006. Extended Working Hours and Health. *Chronobiology International*, 23(6), pp.1305-1316.
- Ringle, C.M., Wende, S. and Becker, J.-M., 2015. *SmartPLS 3. Bönningstedt: SmartPLS*. [online] Available at: <<http://www.smartpls.com>> [Accessed 8 April 2020].
- Robinson B.E., 1999. The work addiction risk test: Development of a tentative measure of workaholism. *Perceptual and Motor Skills*, 88(1), pp.199-210.
- Roelen, C.A.M., Koopmans, P.C. and Groothoff, J.W., 2008. Which work factors determine job satisfaction? *Work*, 30(4), pp.433-439.
- Ross, I.C. and Zander, A., 1957. Need satisfactions and employee turnover. *Personnel Psychology*, 10(3), pp.327-338.
- Salvador, F., Forza, C., Rungtusanatham, M. and Choi, T.Y., 2001. Supply chain interactions and time- related performances. *International Journal of Operations & Production Management*, 21(4), pp.461-475.
- Schaufeli, W.B., Salanova, M., González-Romá, V. and Bakker, A.B., 2002. The measurement of engagement and burnout: A two sample confirmatory factor analytic approach. *Journal of Happiness Studies*, 3(1), pp.71-92.
- Schaufeli, W.B., 2013. What is engagement. Employee engagement in theory and practice, In: Truss, C., Alfes, K., Shantz, A. and Soane, E. (Eds.). *Employee Engagement in Theory and Practice*, Oxon: Routledge, pp.15-35.
- Schaufeli W.B., Shimazu, A., Taris, T.W., 2009. Being driven to work excessively hard. The evaluation of a two-factor measure of workaholism in the Netherlands and Japan. *Cross-Cultural Research*, 43(4), pp.320-348.
- Scott, J., 1997. *Corporate business and capitalist classes*. OUP Oxford. [online] Available at: <<https://global.oup.com/academic/product/corporate-business-and-capitalist-classes-9780198280767?cc=ro&lang=en&>> [Accessed 12 March 2020].
- Shimazu, A., Kubota, K. and Bakker, A.B., 2015. *How workaholism affects employees and their families*. [online] Available at: <<https://psycnet.apa.org/record/2014-34160-008>> [Accessed 27 February 2020].
- Shkoler, O., Rabenu, E., Vasiliu, C., Sharoni, G. and Tziner, A., 2017. Organizing the confusion surrounding workaholism: New structure, measure, and validation. *Frontiers in Psychology*, 8, p.1803.

- Snir, R. and Zohar, D., 2008. Workaholism as discretionary time investment at work: An experience- sampling study. *Applied Psychology*, 57(1), pp.109-127.
- Spence, J.T. and Robbins, A.S., 1992. Workaholism: Definition, measurement, and preliminary results. *Journal of Personality Assessment*, 58(1), pp.160-178.
- Taipale, S., Selander, K., Anttila, T. and Nätti, J., 2011. Work engagement in eight European countries: The role of job demands, autonomy, and social support. *International Journal of Sociology and Social Policy*, 31(7/8), pp.486-504.
- Taris, T.W. and Schaufeli, W., 2015. *Individual well-being and performance at work: A conceptual and theoretical overview*. [online] Available at: <https://www.researchgate.net/publication/311642936_Individual_well-being_and_performance_at_work_A_conceptual_and_theoretical_overview> [Accessed 12 March 2020].
- Tenenhaus, M., Vinzi, V.E., Chatelin, Y.M., and Lauro, C., 2005. PLS path modeling. *Computational Statistics & Data Analysis*, 48(1), pp.159-205.
- Tett, R.P. and Meyer, J.P., 1993. Job satisfaction, organizational commitment, turnover intention, and turnover: path analyses based on meta- analytic findings. *Personnel Psychology*, 46(2), pp.259-293.
- Thorsteinson, T.J., 2003. Job attitudes of part- time vs. full- time workers: A meta- analytic review. *Journal of Occupational and Organizational Psychology*, 76(2), pp.151-177.
- Tziner, A., Shkoler, O., Rabenu, E. and Oren, L., 2018. Antecedents to Burnout Among Hospital Doctors: Can they cope? *Medical Research Archives*, 6(10), pp.1-19.
- Vallerand, R.J., Blanchard, C., Mageau, G.A., Koestner, R., Ratelle, C., Léonard, M. and Marsolais, J., 2003. Les passions de l'ame: on obsessive and harmonious passion. *Journal of Personality and Social Psychology*, 85(4), pp.756-767.
- Vecchio, G.D., 1980. *Filosofía del derecho*. [online] Available at: <<https://www.jursoc.unlp.edu.ar/documentos/alumnos/programas/filosofiacat1.pdf>> [Accessed 22 March 2020].
- Wang, M., Zhan, Y., Liu, S. and Shultz, K. S., 2008. Antecedents of bridge employment: A longitudinal investigation. *Journal of Applied Psychology*, 93(4), pp.818-830.
- Weiner, B., 1985. An attributional theory of achievement motivation and motion. *Psychological Review*, 92(4), pp.548-573.