Asesorías y Tutorías para la Investigación Científica en la Educación Puig-Salabarría S.C.
José María Pino Suárez 400-2 esq a Lerdo de Tejada. Toluca, Estado de México. 7223898475
RFC: ATI120618V12

Revista Dilemas Contemporáneos: Educación, Política y Valores.
http://www.dilemascontemporaneoseducacionpoliticayvalores.com/
Año: X Número: 1. Artículo no.:4 Período: 1ro de septiembre al 31 de diciembre del 2022.

TÍTULO: Medición de la Responsabilidad Social Universitaria desde una visión holística.

AUTORES:

1. Dr. Víctor Manuel Molina Morejón.

2. Dra. Vanessa Espitia Mendoza.

3. Dr. Jesús Alberto Montalvo Morales.

RESUMEN: Debido a la importancia de la universidad como institución socialmente responsable, este trabajo tiene como objetivo medir, con una visión holística, los impactos organizacionales, cognitivos, sociales y educativos, y analizar los efectos del impacto organizacional en lo cognitivo, ambos impactos en lo social, y este último en lo educativo. El análisis empírico se realizó en una universidad pública del norte de México a una muestra de 200 estudiantes universitarios que cursaban los últimos semestres. Las respuestas se procesaron con Mínimos Parciales Cuadrados. Los resultados indican que los impactos organizacionales ejercen un efecto positivo sobre los impactos sociales y cognitivos, aunque este último ejerce un impacto más débil sobre lo social, y éste ejerce un efecto positivo sobre el impacto educativo.

PALABRAS CLAVES: visión holística, mínimos cuadrados parciales, impactos, responsabilidad social universitaria.

TITLE: Measurement of University Social Responsibility from a holistic view.

AUTHORS:

1. PhD. Víctor Manuel Molina Morejón.

2. PhD. Vanessa Espitia Mendoza.

3. PhD. Jesús Alberto Montalvo Morales

ABSTRACT: Due to the importance of the university as a socially responsible institution, this work aims to measure, with a holistic view, the organizational, cognitive, social and educational impacts, and analyze the effects of the organizational impact on the cognitive, both impacts on the social , and the latter in education. The empirical analysis was carried out in a public university in the north of Mexico to a sample of 200 university students who were in their last semesters. The responses were processed with Least Partial Squares. The results indicate that the organizational impacts have a positive effect on the social and cognitive impacts, although the latter has a weaker impact on the social, and the latter has a positive effect on the educational impact.

KEY WORDS: holistic view, partial least squares, impacts, university social responsibility.

INTRODUCTION.

Over more than forty years ago, the world's sustainability problems began to be addressed as main points on the agendas of most countries. This was motivated by the degree of social degradation, economic problems, and the growing impacts on the environment. From these problems, a need to be socially responsible in organizations has emerged. Since the 20th century, corporate social responsibility has been defined as a commitment that companies have to contribute to sustainable economic, social, and ethical development, as well as with their employees, families, the environment, the local community, and the society in general to seek better standards of living (Gasca-Pliego & Olvera-García, 2011).

In the last years, it has been observed that corporate social responsibility has permeated the business industry to a large degree. There is evidence that sustainable development is still considered a novel idea in many universities (Waas et al., 2010), and that not all disciplines, academia or university leaders are aware of university social responsibility (USR) (Lozano et al., 2013). So far, universities, like other public organizations, have shown less understanding of the concept of social responsibility in their management and information systems (Hernández 2007; Lozano, 2007). A responsible university promotes an open mind towards an economic, social, and environmental thinking and educates students and professors in a responsible way.

The concept of USR as cited in UNESCO (1998) refers to the social function attributed to higher education institutions, that supports the economic and social development and transformation of the communities that interact in the territory, society, and state, which in turn impact students' ethics and abilities to become responsible citizens (Olarte-Mejía & Ríos-Osorio, 2015). The USR requires the development of the local community, interaction with the governing bodies and environmental concern through a responsible development program in which all shareholders -students, professors, administrators, managers, graduates, and the network of companies linked to the university- are united and can listen and feel social, economic, and environmental concerns.

Vallaeys (2011), a leading expert in USR, developed a USR model based on organizational, cognitive, social, and educational impacts. Internationally, there has been an increase in publications on USR and the impacts; however, studies that evaluate the relationships and influences that are generated between these four impacts in a holistic view are limited. Based on this limitation, the authors of this research generated a research instrument based on Vallaeys et al. (2009), López-Aza et al. (2019), Cortes et al. (2017), Baca-Neglia et al. (2017), Fernández-García (2015), Gaete Quezada (2015), Vázquez et al. (2014). Godemann et al. (2014) and Zaccaro et al. (2015.). To carry out this exploratory study, 200 university students were surveyed and asked to evaluate to what degree the

four impacts were addressed in the university. For this reason, the most important contribution of this research is the presentation of the results where the four impacts of Vallaeys model are analyzed from a holistic perspective and the effects of the organizational impact and cognitive impact were evaluated, both impacting the social area and the latter having effects on the educational impact. Another research contribution is the use of structural equation models.

Vallaeys (2011) stated that university social responsibility (USR), in addition to taking into account the established norms, has impacts on society and the environment. Higher education as a public good, is responsible for all stakeholders, in particular, in the private initiative where the leadership has control of its financing. In face of the complex present and future global challenges, higher education has a social responsibility to develop the understanding of the social, economic, scientific and cultural problems, as well as develop the abilities to deal with them (UNESCO, 2009).

Integrating sustainability at all levels of education can be a way of dealing with structural and political factors that generate change (Dobson, 2007). For this to be achieved, it is also necessary to impact people's cognitive abilities, impacting their attitudes and thinking. People with an understanding of sustainability and a positive attitude towards it can be creative and generate innovative sustainable solutions that correspond to the local needs of their communities (Boyce, 2008). The formal education system is an appropriate arena to promote sustainability, because it has an influence on the perspectives and attitudes towards the world and sustainability, which can produce profound social change (Dobson, 2007).

Research studies have continuously addressed the responsibility that a university has for the knowledge it produces, how it manages cognitive aspects, how this generated knowledge is assimilated by society, and how the student receives it, perceives it and interprets it (Cajio, 2001; Encarnación & Legañoa, 2013; Fainholc, 2006; Gaete Quezada, 2015; Koehler et al., 2015; Nonaka & Takeuchi, 1999; Vallaeys et al., 2009; Vallaeys, 2016).

DEVELOPMENT.

This study will attempt to provide certain relationships between four key factors. Based on the literature review, the following four scenarios were formulated:

H1: The higher the level of the organizational impacts, the higher the level of the cognitive impacts.

H2: The higher the level of organizational impacts, the higher the level of social impacts.

H3: The higher the level of cognitive impacts, the higher the level of social impacts.

H4: The higher the level of social impacts, the higher the level of educational impacts.

Figure 1 shows in more detail the relationship between the different factors analyzed that correspond to the four impacts proposed by Vallaeys (2011), as well as the hypothesis proposed in this study.

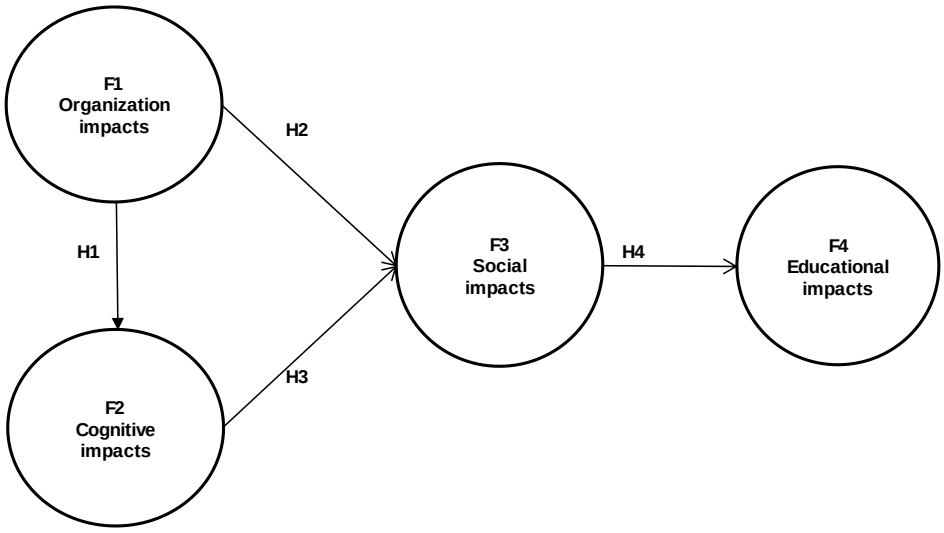


Figure 1 Conceptual Model of University Social Responsibility.
This is based on the contribution from Vallaeys (2009).

Methodology.

To validate the proposed hypotheses, empirical research was carried out at a university in northern Mexico, with the following questions: Why should we study Vallaeys et al. (2009) model from a holistic perspective? ¿Why emphasize leadership on cognitive impact?

The authors propose the study of USR from a holistic perspective to appreciate interactions, particularities, and processes that are not usually perceived if each aspect is studied separately. In particular, Vallaeys et al. (2009) provides a general model that includes organizational impacts (responsible campus), cognitive impacts (social management of knowledge), social impacts (social participation) and educational impacts (professional training and citizenship), as viewed in Figure 2. Vallaeys, in its original figure, incorporates arrows at the four vertices that connect the impacts in both directions. Instead, the authors of this study propose that interactions between impacts can be generated only clockwise. Feedback counterclockwise is an outlined as an improvement process based on the failures that are generated in that process.

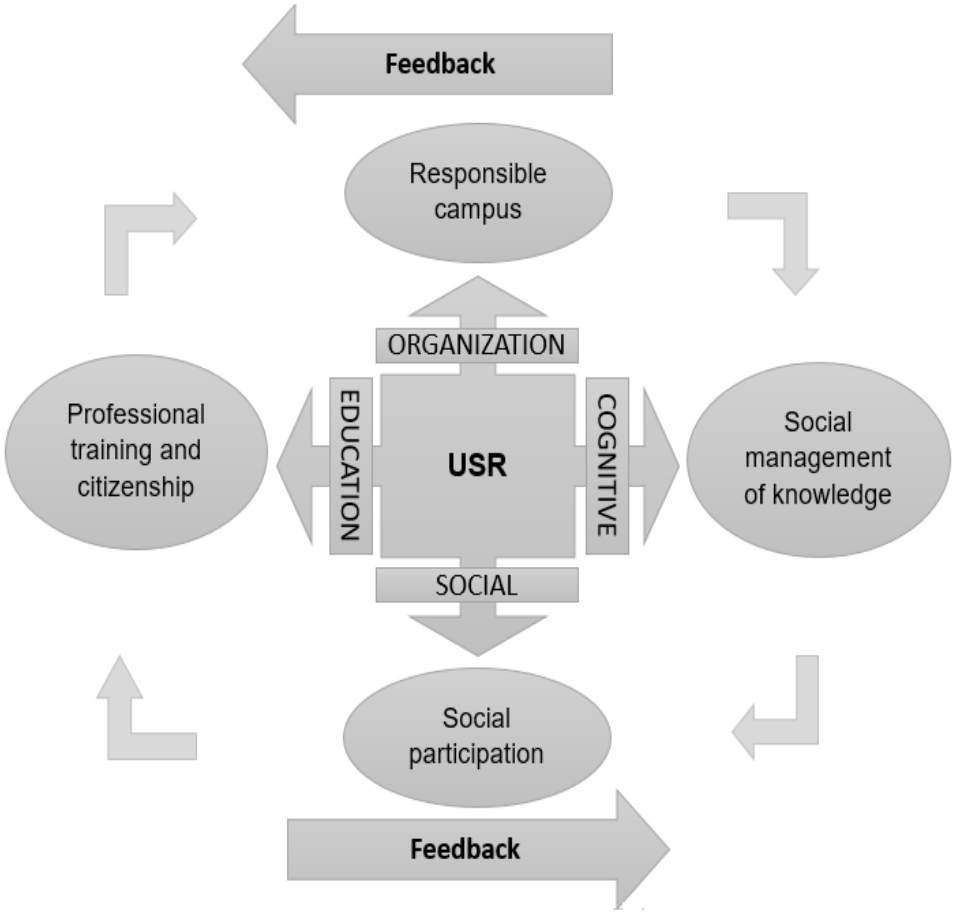


Figure 2. Model for USR Strategies. The Model for USR Strategies was taken and adapted from Diagram No. 4 from Vallaeys (2009).

The intention to analyze cognitive aspects after the organizational impact starts from two approaches: the first from Vallaeys et al. (2009), when he mentions that the cognitive impact is the least known and it ultimately defines the mental paradigms and the practical models through which leaders, managers and professionals build and reproduce society based on their knowledge and ways of understanding reality, and the second from the influence of leadership in cognition, as identified by Godemann et al. (2014) and Zaccaro et al. (2015.) This is why the authors in this research have prioritized this cognitive impact and have suggested that it be supported by a leadership in which the knowledge generated is continually planned, developed, verified and improved by teachers that share the USR principles.

The empirical analysis was used with a sample of 200 university students that were enrolled in the 4th semester (2nd year of their career program) through the 9th Semester (fifth and final year of their career program) in a public university in northern Mexico, and that represents 45% of the student university population. Within this research, they were asked to answer the extent to which the four impacts determined by Vallaeys et al. (2009) -organizational, cognitive, social, and educational- were identified in the university work. The survey was sent and responded through a Google platform.

To develop the test results, an analysis of reliability and validity of the measures was carried out. All items are based on a five-point Likert scale, which ranges from "1 = completely disagree" to "5 = completely agree". The organizational impacts were measured on a scale of five items based on Vallaeys (2006), Vallaeys et al. (2009), López-Aza et al. (2019), Cortes et al. (2017), Baca-Neglia et al. (2017), Fernández-García (2015), Gaete Quezada (2015) y Vázquez et al. (2014). The cognitive impact was measured on a scale of five items based on Vallaeys (2006), Vallaeys et al. (2009), López-Aza et al. (2019), Cortes et al. (2017), Fernández-García (2015), this scale of cognitive impact also incorporated the influence of leadership on cognition, as identified by Godemann et al. (2014) and Zaccaro et al. (2015.) This scale evaluates the leadership that educational institutions should exert

through thinking and acting on issues related to ethics, social responsibility, and sustainability. To measure social impact, a scale with four items was utilized and it was based on López-Aza et al. (2019) and Baca-Neglia et al. (2017). The educational impacts have a scale of five items based on Vallaeys (2006), Vallaeys et al. (2009), López-Aza et al. (2019), Baca-Neglia et al. (2017) and Fernández-García (2015).

PLS Procedure.

This qualitative research used a correlational study to compare four research hypotheses through the application of a predictive analysis and the partial least squares (PLS) multiple regression, which helped support and explain the research conceptual model. The use of the PLS to validate the research conceptual model is based on the predictive nature of the research. Cepeda et al. (2013) states that the PLS, unlike the covariance-based SEM, is mainly oriented towards predictive casual analysis in high complex situations and a theory that has not yet been solidly developed.

The procedure was organized in general by complying with the requirements of the SmartPLS Software (V.3.2.7.) by Ringle et al. (2015) and solutions by Cepeda and Roldán (2005) and Miranda-Zapata and Ruíz (2015). In this research, the model used was considered as belonging to a reflective construct and follows Chin (2010), who states that if one of the indicators is increased in one direction, the rest of the indicators also change in a similar way. In addition, it was found that the measures of a construct were correlated and reached a high level in measures of internal consistency. Before applying the PLS procedure, it was verified that the data did not follow a normal distribution, and this was evaluated with the Kolmogorov-Smirnov test. The significance values ranged from 0.001 to 0.021 ($p < 0.05$ in all cases), implying the rejection of the null hypothesis of normality.

Evaluation of outer model: Measurement models.

The first step is to examine the reliability and validity of the reflective measurement model. The Composite Reliability Index (ICR) (Table 1) and the Average Variance Extracted (AVE) meet the reference indicators since they reach values above 0.6 and 0.5 recommended by Bagozzi and Yi (1988). The outer loading was greater than 0.7 and t values > 1.96. Cronbach's alpha is found to be in a suitable range of 0.72 - 0.83. The AVE, in all cases, was greater than 0.5, and the (ICR) in all cases was greater than 0.6. The existence of internal reliability and convergent validity is verified.

Table 1. Evaluation measurement model.

Latent variable	Indicators	Outer loadings	t values	Average outer loadings	Cronbach's alpha	ICR	AVE
Organizational impact	IO1	0,731***	20,164	0,743	0,734	0,834	0,592
	IO2	0,714***	19,89				
	IO3	0,718***	16,133				
	IO4	0,809***	22,26				
	IO5	n/s					
Cognitive impact	IC1	0,731***	17,88	0,72	0,762	0,84	0,513
	IC2	0,749***	19,28				
	IC3	0,732***	18,1				
	IC4	0,70***	13,34				
	IC5	n/s					
Social impact	IS1	0,816***	25,55	0,832	0,779	0,858	0,694
	IS2	0,855***	42				
	IS3	0,827***	35,2				
	IS4	n/s					
Educational impact	IE1	0,723***	16,82	0,776	0,78	0,859	0,603
	IE2	0,786***	24,56				
	IE3	0,828***	30,17				
	IE4	0,767***	17,53				
	IE5	n/s					

n/s not significant.

Discriminant validity.

The rule recommended by Fornell and Larcker (1981) was used when it states that ($AVE^{1/2}$) must be greater than the other correlation values between latent variables. These ($AVE^{1/2}$) values are shown diagonally in parentheses (Table 2) verifying that they are superior to the correlation between the latent variables. The tolerance or Variance Inflation Factor (VIF) is in the range of 1.83 and 2.92. Therefore, it can be assumed that there is no multicollinearity since all the VIF values are less than 4 (Mandeville, 2008).

Table 2. Discriminant Validity.

	COG-IMP	EDU-IMP	ORG-IMP	SOC-IMP
COG-IMP	**(0,716)**			
EDU-IMP	0,757	**(0,777)**		
ORG-IMP	0,767	0,698	**(0.769)**	
SOC-IMP	0,657	0,63	0,692	**(0,833)**

This table was created by the authors.

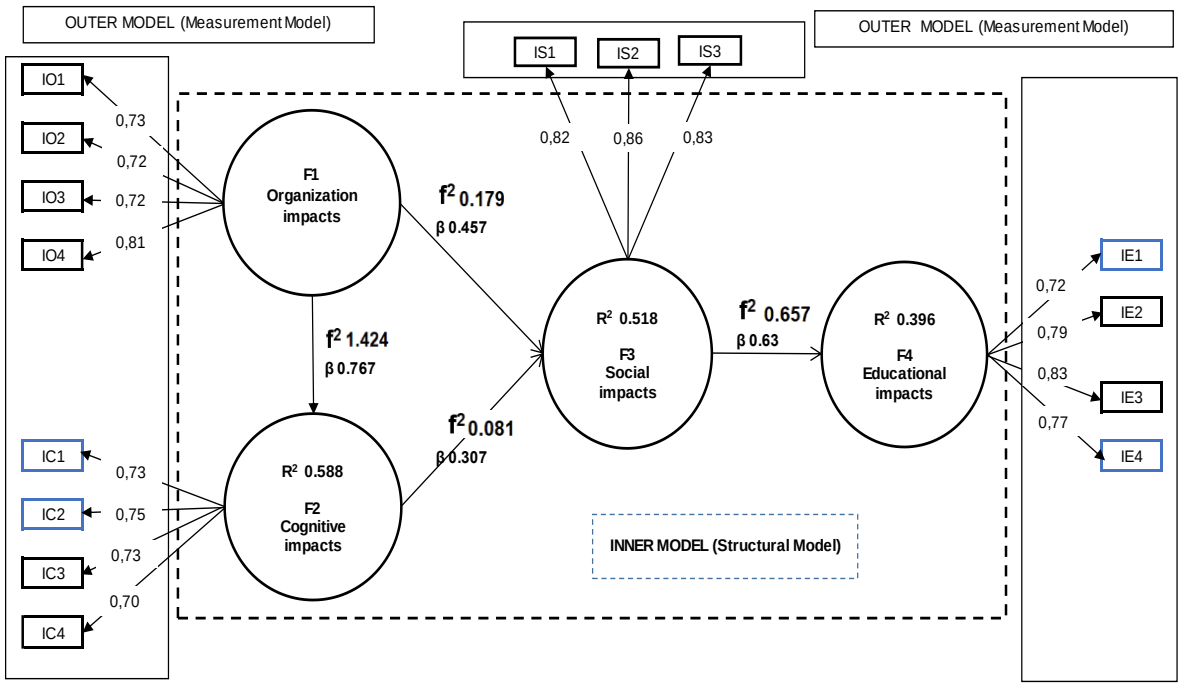
In summary, the external model (Figure 3) shows the values of the factor load of each of the 15 variables from the bootstrapping procedure. All loads are higher than the value of 0.7, this is recommended by Hair et al. (2014) for PLS and the significance value of each one is less than 0.05 which is also the recommended value. Once the reliability and validity have been verified, the structural model is evaluated using the following procedures.

Evaluation of the inner model: Structural model.

Figure 3 shows the inner model (dashed line) and the external model (continuous line). The inner model presents values of the standardized path coefficients (β value) that exceed the minimum value

of 0.4, except for the value of F2-F3 that falls below 0.4 in regard to the path coefficient, β value. The "p" value of statistical significance is less than 0.01 for all trajectories.

Figure 3. PLS-SEM results.



The coefficient of determination, R^2 is 0.396 for the F4 Educational impacts, for the Social impacts is 0.518 and for the F2 cognitive impact is 0.588. This means that the three latent variables (F1, F2, and F3) moderately explain 39.6% of the variance in F4 Educational Impacts. Organizational Impact, F1 and Cognitive Impact, F2 together explain 51.8% of the variance of F3 Social Impact. R^2 values of 0.75, 0.50, or 0.25 for are substantial, moderate, or weak, respectively (Cepeda and Roldán, 2005). The predictive relevance Q^2 index is additional to R^2. Sarstedt et al. (2017) recommend examining cross-validated redundancy (Q^2) of the structural model. These authors also establish 0.02 as small values, 0.15 as mean values and 0.35 as large values to consider predictive validity of the model. To determine Q^2 in SmartPLS it is necessary to generate the blindfolding procedure.

The f^2 index can be used to assess whether the omitted construct has a substantive impact on endogenous constructs. For this, Cohen (1998) defines specific values, where a small effect size is f = .10; a medium effect size is f = .25; and a large effect size: f = .40. For this study, the elimination of the F2-F3 path would have a small effect; removing the F1-F3 path would produce a medium effect and removing the F1-F2 and F3-F4 paths would have a large effect.

Results.

Testing the hypotheses.

The procedure for testing the hypotheses is obtained from the bootstrapping runs in PLS. In regard to hypotheses H1, the results obtained ($\beta = 0.767$, $p < 0.001$) indicate that organizational impacts have significant effects in generating cognitive impacts. The results in H2 ($\beta = 0.457$, $p < 0.001$) reflect that the organizational impacts have significant effects on the level of social impacts. In H3, the results obtained ($\beta = 0.307$, $p < 0.001$) show that the cognitive impacts have significant effects on the social impacts, and in regard to H4, the results ($\beta = 0.630$, $p < 0.001$) indicate that social impacts produce significant effects on the educational impacts.

The adjustment of the model indicates values of the Standarized Root Mean-Square (SRMR) of 0.08; the recommended adjustment that should not exceed 0.8 according to Hu and Bentler (1995). The Normed Adjustment Index NFI reaches a value of 0.740 and falls below the value recommended by Bentler and Bonnet (1980), of 0.9. However, Ullman (2006) clarifies that this generally happens when the samples are small and downplays this adjustment.

Discussion.

Principles, relationships and scope of measurement models.

The outer loading, the average variance, the Cronbach's alpha, the internal consistency reliability ICR and the average variance extracted AVE, generate values within the recommended confidence

intervals. The results of the cognitive impact stand out negatively since the values of the average outer loading (0,728), and the average variance extracted AVE (0,513) are comparatively the lowest. This indicates a low Cronbach's Alpha value and a low relationship between the indicators. Of the 19 indicators identified in the survey, there were four that were rejected due to their low statistical significance, all of which are related to specific environmental aspects, so it is inferred that although there is a formulation in favor of everything environmental; there is little that can be shown as a practical result achieved.

Principles, relationships and scope of Structural Models.

Standardized path coefficients (β value**)** in relationship to F2-F3, reach a value of 0.307; two criteria are used for its interpretation. In the first criteria, Hair et al. (2014) explains that the indicators have very low loads of 0,40 or less and should always be removed from reflective scales.

In reference to the value of standardized path coefficient (β value) of the path F2 Cognitive – F3 Social, the criteria from Hair et al. (2014) and Kwong (2013) were used, and although the trajectory was not eliminated, there is awareness that that low value of β affects the significance of this relationship. The concern for this analysis is that the low value of f2 also tends to eliminate this F2-F3. This result indicates an analysis which is beyond the scope of this article, for the research group working on these topics, in which two solutions should be assessed, further clarifying how leadership should be present within cognitive impacts, and if there is actually a leadership in everything related to cognition. It is emphasized that the relative statistical importance of a variable is not the same as its strategic or operational importance. Both Hair et al. (2014) and Kwong (2013) mention that the weakest indicators are sometimes retained on the basis of their contribution to the validity of the content and recommend that the relative statistical importance of a variable is not the same as its strategic or operational importance. The authors decided to keep the F2-F3 path valid.

The coefficient of determination, R^2 and the predictive relevance Q^2 reach values within the recommended ranges, the value of R^2 for cognitive impact and its corresponding Q^2 of 0,293 as moderate and average values respectively. The value of R^2, social impact was 0.578, moderate and its corresponding Q^2 of 0,353 which is classified as large. The value of R^2 for educational impact is 0,396 and its corresponding value for Q^2 of 0,233, which are classified as moderate and average values respectively.

Comparison with other published work.

The methodology used and its consequent results cannot be fully compared with other published work. Of the four USR studies processed with PLS and where student information was obtained, only López-Aza et al. (2019) works with Vallaeys impacts. In this research, the four impacts were linked to the global perception of USR and the values obtained in the organizational impacts are lower in comparison to this study and the same in cognitive impacts and analysis of variance.

Two researches from Spain from Baca-Neglia et al. (2017) and Fernández-García (2015), use similar dimensions of organizational management, environmental management, teaching and research, and communication, transparency, and extension, without any mention to the work of Vallaeys. Cortes et al. (2017), from Chile, only works on environmental behavior and his 27 indicators have high values of outer loading, although his indicators related to motivation and knowledge learned on environmental topics are low, as reflected in this study.

CONCLUSIONS.

From the discussions and results shown, the following conclusions were drawn, with a new approach:

1) The main characteristic of the methodology used is in treating the four USR impacts from a holistic perspective to appreciate interactions, particularities, and processes that are not usually perceived. These were studied separately. The importance of leadership is key to promote its activity.

2) The proposed methodology is based on the use of PLS which is easy to use since you only have to use the perceptions that those that are involved have presented in the model.

3) The results obtained in other articles, where the PLS procedure is also incorporated to measure USR, are comparable with the results obtained in this study since they are within statistically acceptable ranges.

4) The methodology used can be expanded when surveying teachers, administrators, businesspeople and society, since the main limitation of this research study is to have only surveyed students in a relatively small sample.

BIBLIOGRAPHIC REFERENCES.

1. Aldás-Manzano, J. (2012). *Partial Least Squares Path Modelling in Marketing and Management: An Annotated Application*. Quantitative Modelling in Marketing and Management, 43-78. https://doi.org/10.1142/9789814407724_0003

2. Baca-Neglia, H., Rondán-Cataluña, F., & García-Del-Junco, J. (2017). Propuesta de medición de la responsabilidad social universitaria. *Revista Espacios*, 38(43) p.1-37.

3. Bagozzi, R., & Yi. Y. (1988). On the Evaluation of Structural Equation Models. *Journal of the Academy of Marketing Sciences*, 16, 74-94. http://dx.doi.org/10.1007/BF02723327

4. Ball, A., & Bebbington, J. (2008). Editorial: Accounting and Reporting for Sustainable Development in Public Service Organizations. *Public Money & Management*, 28(6), 323-326. https://doi.org/10.1111/j.1467-9302.2008.00662.x

5. Bentler, P.M., & Bonett, D.G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*, 88, 588-606.

6. Boyce, G. (2008, February). The social relevance of ethics education in a global(ising) era: From individual dilemmas to systemic crises. *Critical Perspectives on Accounting*, 19(2), 255–290. https://doi.org/10.1016/j.cpa.2006.09.008

7. Cajio, F. (2001) La sociedad educadora. *Revista Iberoamericana de Educación*, 26, 17-33.

8. Cortes, F., Cabana Villca, R., Vega Toro, D., Aguirre Sarmiento, H., & Muñoz Gómez, R. (2017). Variables influyentes en la conducta ambiental en alumnos de unidades educativas, región de Coquimbo-Chile. *Estudios Pedagógicos*, 43(2), 27–46. http://dx.doi.org/10.4067/S0718-07052017000200002

9. Cepeda, G., & Roldán, J. L. (2005). Aplicando en la práctica la técnica PLS en la administración de empresas. Universidad de Sevilla Facultad de Ciencias Económicas y Empresariales, 2-30. http://ciberconta.unizar.es/doctorado/PLSGabrielCepeda.pdf

10. Cepeda, G., Martelo, S., Barroso, C., & Ortega, J. (2013). *Integrating organizational capabilities to increase customer value: A triple interaction effect.* In H. Abdi, W.W. Chin, V. Espozito Vinzi, G. Russolillo, & L. Trinchera (Eds.), New Perspectives in Partial Least Squares and Related Methods (Vol. 56, pp. 283-293). Springer. http://doi.org/10.1007/978-1-4614-8283-3_20

11. Cohen, J. (1998). *Statistical Power Analysis for the Behavioral Sciences* (2nd ed.). Laurence Erlbaum Associates.

12. Chin, W.W. (2010) *How to Write Up and Report PLS Analyses*. In V. Esposito Vinzi, W.W. Chin, J. Henseler, & H. Wang (Eds.), Handbook of Partial Least Squares (pp. 655-690). Springer. https://doi.org/10.1007/978-3-540-32827-8_29

13. Dobson, A. (2007, September). Environmental citizenship: Towards sustainable development. Sustainable Development, 15(5), 276–285. https://doi.org/10.1002/sd.344

14. Encarnación, E.K., & Legañoa, M. (2013, January). Estrategia para favorecer el desarrollo de la interactividad cognitiva en entornos virtuales de enseñanza aprendizaje. *Revista Pixel-Bit*, 42, 129-142.

15. Fainholc, B. (2006, April). Rasgos de las universidades y de las organizaciones de educación superior para una sociedad del conocimiento, según la gestión del conocimiento. *Revista de*

Universidad y Sociedad del Conocimiento, 3(1), 1-11.

16. Fernández-García, S. (2015, December). La responsabilidad social universitaria: Propuesta de un instrumento de evaluación y aplicación a las universidades públicas de Castilla y León [Master's tesis, Facultad de Ciencias Económicas y Empresariales Universidad de León].

17. Fornell, C., & Larcker, D.F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39-50. https://psycnet.apa.org/doi/10.2307/3151312

18. Gasca-Pliego, E., & Olvera-García, J.C. (2011). Construir ciudadanía desde las universidades, responsabilidad social universitaria y desafíos del siglo XXI. *Revista de Ciencias Sociales*, 18(56), 37-58.

19. Gaete Quezada, R. A. (2015) El concepto de responsabilidad social universitaria desde la perspectiva de la alta dirección. *Cuadernos de Administración, Facultad de Ciencias de la Administración, Universidad del Valle, 31*(53), 97-107.

20. Godemann, J., Haertle, J., Herzig, C., & Moon, J. (2014, January). United Nations supported Principles for Responsible Management Education: Purpose, progress and prospects. *Journal of Cleaner Production*, 62, 16–23. https://doi.org/10.1016/j.jclepro.2013.07.033

21. Hair, J. F., Ringle, C. M., & Sarstedt, M. (2014). PLS-SEM: Indeed a Silver Bullet. *Journal of Marketing Theory and Practice*, 19(2), 139–152. https://doi.org/10.2753/mtp1069-6679190202

22. Hernández, M. (2007). La responsabilidad social dentro del sector público. *Ekonomiaz*, 65(2), 84–107. http://dialnet.unirioja.es/descarga/articulo/2533613.pdf

23. Hu, L.T., & Bentler, P.M. (1995). Evaluating model fit. In R.H. Hoyle (Ed.), Structural equation modeling: Concepts, issues and applications (pp. 76-99). Sage Publications.

24. Koehler, M. J., Mishra, P., & Cain, W. (2015). ¿Qué son los Saberes Tecnológicos y Pedagógicos del Contenido (TPACK)? *Virtualidad, Educación y Ciencia*, 6(10), 9-23.

25. Kwong, K. (2013, January). Partial least square structural equation modeling (PLS-SEM) techniques using Smart PLS. *Marketing Bulletin*, 24, Technical Note 1, 1-32.

26. López-Aza, C., Vázquez, J.L., & Lanero, A. (2019). La Responsabilidad Social Universitaria como estrategia de marketing en la universidad. *Revista Internacional de Investigación en Comunicación*, 19(19), 68-95. https://doi.org/10.7263/adresic-019-04

27. Lozano, J. M. (2007). Promoción pública de la responsabilidad social empresarial. *Ekonomiaz*, (65), 108–127.

28. Lozano, R., Lukman, R., Lozano, F.J., Huisingh, D., & Lambrechts, W. (2013, June). Declarations for sustainability in higher education: Becoming better leaders, through addressing the university system. *Journal of Cleaner Production*, 48, 10-19. https://doi.org/10.1016/j.jclepro.2011.10.006

29. Mandeville, P. B. (2008). ¿Por qué se deben centrar las covariables en regresión lineal? *Ciencia UANL*, 11(3), 300-305.

30. Miranda-Zapata, E., & Ruiz, M.A. (2015). Precisión en la recuperación de parámetros, con datos ordinales, en el análisis de estructura de covarianza y el modelo de rutas mediante mínimos cuadrados parciales. *Universitas Psychologica*, 14(3), 985-996. https://doi.org/10.11144/Javeriana.upsy14-3.prpd

31. Nonaka, I., & Takeuchi, H. (1999). *La organización creadora de conocimiento: Cómo las compañías japonesas crean la dinámica de la innovación*. Oxford University Press.

32. Olarte-Mejía, D. V., & Ríos-Osorio, L.A. (2015, July). Enfoques y estrategias de responsabilidad social implementadas en Instituciones de Educación Superior: Una revisión sistemática de la literatura científica de los últimos años. *Revista de la Educación Superior*, 44(175), 19-40. https://doi.org/10.1016/j.resu.2015.10.001

33. Ringle, C. M., Wende, S., & Becker, J. M. (2015). *Smart PLS 3*. http://www.smartpls.com/

34. Sarstedt, M., Ringle, C. M., & Hair, J. F. (2017). Partial Least Squares Structural Equation Modeling. In C. Homburg, M. Klarmann & A. Vomberg (Eds.)., Handbook of Market Research (pp. 1-40). Springer. https://doi.org/10.1007/978-3-319-05542-8_15-1

34. Ullman, J.B. (2006). Structural equation modeling. In B.G. Tabachnick & L.S. Fidell (Eds.). Using multivariate statistics (5th Ed. pp. 653-771). Allyn & Bacon.

35. UNESCO. (2009, July). Conferencia Mundial sobre la Educación Superior - 2009: Las nuevas dinámicas de la educación superior y la investigación para el cambio social y el desarrollo. *Comunicado*, 1-9.

36. Vallaeys, F. (2006). La responsabilidad social de la universidad. Pontificia Universidad Católica del Perú.

37. Vallaeys, F. (2011). *Les fondements éthiques de la Responsabilité Sociale*. Thèse de Doctorat. Université Paris Est Créteil.

38. Vallaeys, F. (2016). *Introducción a la Responsabilidad Social Universitaria RSU*. Ediciones Universidad Simón Bolívar.

39. Vallaeys, F., De la Cruz, C., & Sasia, P. M. (2009). *Responsabilidad social universitaria: Manual de primeros pasos*. McGraw-Hill Interamericana.

40. Vázquez, J.L., Aza, C.L., & Lanero, A. (2014). Are students aware of university social responsibility? Some insights from a survey in a Spanish university. *International Review on Public and Nonprofit Marketing*, 11(3), 195–208. https://doi.org/10.1007/s12208-014-0114-3

41. Waas, T., Verbruggen, A., & Wright, T. (2010). University research for sustainable development: Definition and characteristics explored. *Journal of Cleaner Production*, 18(7), 629-636. https://doi.org/10.1016/j.jclepro.2009.09.017

42. Zaccaro, S. J., Connelly, S., Repchick, K. M., Daza, A. I., Young, M. C., Kilcullen, R. N., Gilraine, V. L., Robbins, J. M., &Bartholomew, L. N. (2015). The influence of higher order cognitive

capacities on leader organizational continuance and retention: The mediating role of developmental experiences. *The Leadership Quarterly*, 26(3), 342–358. https://doi.org/10.1016/j.leaqua.2015.03.007

DATOS DE LOS AUTORES.

1. **Víctor Manuel Molina Morejón**. Doctorado en Ciencias Técnicas, Universidad Autónoma de Coahuila, Catedrático Investigador, México. Correo electrónico: victormolina@uadec.edu.mx
2. **Vanessa Espitia Mendoza**. Doctorado en educación, Universidad Autónoma de Coahuila, Catedrático Investigador, México. Correo electrónico: vespitia@uadec.edu.mx
3. **Jesús Alberto Montalvo Morales**. Doctorado en administración y alta dirección. Universidad Autónoma de Coahuila. Director de planeación, México. Correo electrónico: jesusmontalvo@uadec.edu.mx

RECIBIDO: 24 de mayo del 2022. **APROBADO:** 2 de julio del 2022.