



Human Resources & Organizations

# Adaptation and obtainment of evidence for the validity of the “Scale of Perceived Sacrifices Associated with Leaving (the organization)” in the Brazilian context: a study among teachers of basic, technical, and technological education

*Adaptação e obtenção de evidências para a validade da “Escala de Sacrifícios Percebidos Associados com a Saída (da organização)” no contexto brasileiro: um estudo entre professores do Ensino Básico, Técnico e Tecnológico*

*Adaptación y obtención de evidencias para la validez de la escala de “Sacrifícios Percibidos Asociados con la Salida (de la organización)” al contexto brasileño: un estudio entre profesores de la Educación Básica, Técnica y Tecnológica*

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## Abstract

The most widely-used model in studies of organizational commitment is the three-dimensional model developed by Meyer and Allen in 1991. This model understands the construct as being composed of instrumental, affective, and normative dimensions. However, it has been criticized by researchers who do not view instrumental commitment as related to the concept of commitment, but instead as a possible organizational link. In order to address the conceptual and empirical problems of the instrument, Powell and Meyer perfected the sub-scale of instrumental commitment and recommended that a new scale, named Perceived Sacrifices Associated with Leaving, be used in future research. This article aims to adapt and obtain evidence of the validity of the new scale, and analyze how teachers perceive the sacrifices associated with leaving a Federal Institute of Education, Science, and Technology. The scale has undergone cross-cultural adaptation and the adapted version was applied to teachers. Exploratory Factor Analysis and Confirmatory Factor Analysis were applied, displaying evidence of the validity of the construct for the Brazilian version. The results revealed that teachers agree on the high intensity level of the sacrifices associated with leaving, and that teachers who occupy management positions perceive it to a higher degree than others. The proposed changes in the scale should be evaluated in future research, and other studies are important to confirm the results found.

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**Keywords:** Organizational link; Organizational commitment; Cross-cultural adaptation; Evidence of validity; Perceived Sacrifices Associated with Leaving Scale

## Resumo

O modelo mais utilizado nos estudos sobre o comprometimento organizacional é o modelo tridimensional desenvolvido por Meyer e Allen em 1991, que entendem o construto como sendo composto pelas dimensões instrumental, afetiva e normativa. O modelo vem recebendo diversas críticas

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de pesquisadores para os quais o comprometimento instrumental não deve ser relacionado no conceito de comprometimento, e sim como um possível vínculo organizacional. Powell e Meyer (2004), com o intuito de abordar os problemas conceituais e empíricos do instrumento, aperfeiçoaram a subescala de comprometimento instrumental e recomendam que a nova escala, denominada Escala de Sacrifícios Percebidos Associados com a Saída da organização, seja usada em pesquisas futuras. Este artigo teve como objetivo adaptar e obter evidências de validade da nova escala e analisar como os professores percebem os sacrifícios associados com a saída em um Instituto Federal de Educação, Ciência e Tecnologia. A escala passou por processo de adaptação transcultural e a versão adaptada foi aplicada aos docentes. Os dados foram submetidos à Análise Fatorial Exploratória e à Análise Fatorial Confirmatória, confirmando evidências de validade do construto para sua versão brasileira na amostra utilizada. Os resultados indicam que os professores concordam que há sacrifícios associados à saída em grau elevado de intensidade e que os professores que ocupam cargos de chefia percebem em grau mais elevado que os demais professores. Considera-se que as modificações propostas à escala devam ser avaliadas em pesquisas futuras, sendo importantes outros estudos para confirmação dos resultados encontrados nesta pesquisa.

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*Palavras-chave:* Vínculo organizacional; Comprometimento organizacional; Adaptação transcultural; Evidência de validade; Escala de Sacrifícios Percebidos Associados com a Saída da organização

## Resumen

El modelo más utilizado en los estudios sobre el compromiso organizacional es el modelo tridimensional desarrollado por Meyer y Allen en 1991, que proponen que el constructo se compone de dimensiones instrumental, afectiva y normativa y ha recibido diversas críticas de los investigadores que sugieren que el compromiso instrumental no debe ser visto en el concepto de compromiso, sino como un posible vínculos organizativos. Powell y Meyer (2004), con el fin de abordar los problemas conceptuales y empíricos del instrumento perfeccionaron la subescala del compromiso instrumental y recomiendan que la nueva escala, denominada Escala de Sacrificio Percibidos Asociados a la Salida de la organización, sea utilizada en futuras investigaciones. Este artículo tiene como objetivo adaptar y validar la nueva escala. La escala fue sometida a proceso de adaptación cultural. La versión adaptada del instrumento fue administrada a los profesores del Instituto Federal del Espíritu Santo y la muestra paso por validación cruzada. Las muestras fueron sometidas a un análisis factorial exploratorio y a un análisis factorial confirmatorio, lo que confirma la validez de constructo de la versión brasileña. Se considera que los cambios propuestos deban ser evaluados en futuras investigaciones, siendo que otros estudios para confirmar los resultados encontrados son importantes.

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*Palabras clave:* Vínculo Organizacional; Compromiso organizacional; Adaptación cultural; Evidencia de validez; Escala de Sacrifícios Percibidos Asociados con la Salida de la Organización

## Introduction

The study of the bonds established by individuals is focus on different fields of study, such as Philosophy, Sociology, Psychology, and Administration. According to Siqueira and Gomide (2014), whereas Philosophy analyzes the bonds based on social cooperation, Sociology claims that these bonds can be explained by social and economic theory and by the principle of reciprocity. In Psychology, there are two components used to explain the bonds established by individuals: one explains the bonds by means of affective links, and the other attempts to explain them with identification theories, categorization, and social comparison, and by the inequality principle.

In Administration, the study of bonds is a focus of the Organizational Behavior field. This interest is justified by the fact that a deeper understanding of the origins and dynamics of the established bonds between employees and organization has clear consequences in management. Moreover, its influence can be seen in how the organization formulates its human resource management policies and practices (Bastos, Maia, Rodrigues, Macambira, & Borges-Andrade, 2014). Kramer and Faria (2007) state that individuals' behavior within the organization relates directly to the bonds established between them. Thus, explaining how bonds are formed, identifying the implications

for the internal structure of the individual and for his/her development and behavior, have been considered the main challenges facing the scholars on the subject (Siqueira & Gomide, 2014). In Brazil, according to Bastos et al. (2014), the most studied bond among researchers of the field of Organizational Behavior is organizational commitment, a construct that has its origins prior to the 1980s, although it was in that decade that the study of the subject first gained prominence in Brazil.

It was during this same period that Mowday, Steers, and Porter (1979) developed the first model of the construct, defining organizational commitment as a strength related to the identification and involvement of the worker with the organization, characterized by the agreement with organizational goals and values, and the desire to remain a member and to put forth effort for the organization. These authors proposed an one-dimensional model using the affective basis to measure commitment to the organization.

In the following decade, Meyer and Allen (1991) proposed a three-dimensional model, which groups organizational commitment into three different types: (a) continuance basis, also known as instrumental – this includes cost calculations (side bets) involved in the discontinuity of a line of action; (b) affective basis – this measures the identification with and affection toward the organization; and (c) normative basis

– which views the commitment as an individual's sense of responsibility to the organization, to the extent that he/she feels obliged to remain with the organization because he/she owes it.

The three-dimensional model, however, has received criticism. [Rodrigues and Bastos \(2010\)](#) argue that the continuance commitment must be seen as a possible bond between the individual and the organization, but it should not be associated with the concept of commitment. With the aim of addressing the shortcomings of the existing side-bets measures, [Powell and Meyer \(2004\)](#) improved two measures: the continuance commitment scale of [Meyer and Allen \(1991\)](#) and measures of side-bets of [Shore, Tetrick, Shore, and Barksdale \(2000\)](#). Regarding the three-dimensional model, [Powell and Meyer \(2004\)](#) propose to have developed a more reliable metric measure of continuance commitment, called Scale of Perceived Sacrifices Associated with Leaving, recommending that it should be used in future research concerned with this model.

Since the original instrument was developed in English, to allow its application in the Brazilian context, it is necessary that the scale be translated into Brazilian Portuguese and culturally adapted. The objective of this study was to culturally adapt the Scale of Perceived Sacrifices Associated with Leaving proposed by [Powell and Meyer \(2004\)](#) for Brazilian Portuguese, since no study using this scale was found in the country. Because the scale will be used as an instrument to evaluate the construct among teachers of the federal public service, it was also necessary to adapt it to the characteristics of this career.

This article is organized as follows: after this introductory section we will expose the theoretical framework on the topics covered. Next, we will describe the method adopted for adaptation of the scale and the pre-test version. Finally, we present the instrument adapted to the Brazilian context.

## Theoretical framework

In this section, the main theoretical concepts related to the research are presented. This segment begins with an exposition of the three-dimensional model of organizational commitment, focusing on the instrumental base, which is the object of this study. It ends with an overview of the main methods of adapting scales.

### *The three-dimensional model of organizational commitment*

In everyday use, commitment may be related to the orientation of the individual, his/her personal dedication, and the individuals and groups to whom an employee is attached. These two components are treated in the literature, respectively, as the bases and foci of the commitment. There is a variety of forms of work commitment being analyzed, considering the various foci (organization, career, job, union) and their bases (affective, normative, and continuance).

[Rodrigues and Bastos \(2010\)](#) indicate a predominance of [Meyer and Allen's \(1991\)](#) three-dimensional model on the research agenda on organizational commitment. The model

proposed by [Meyer and Allen \(1991\)](#) was an attempt to integrate the different one-dimensional concepts of organizational commitment, since for them there was a common element in all settings – the commitment binds the individual to a course of action. Despite this convergence, the concepts differ with regard to the characterization of the commitment ([Powell & Meyer, 2004](#)).

[Meyer and Allen \(1991\)](#) conceptualize commitment in three approaches and claim that these approaches have as a common denominator the fact that they view commitment as a psychological state that can characterize the employee–organization relationship, and which has implications for the decision to continue or not being a member of the organization. For the authors, what distinguishes the dimensions is that

Affective commitment refers to the employee's emotional attachment to, identification with, and involvement in the organization. Employees with a strong affective commitment continue employment with the organization because they **want** to do so. Continuance commitment refers to an awareness of the costs associated with leaving the organization. Employees whose primary link to the organization is based on continuance commitment remain because they **need** to do so. Finally, normative commitment reflects a feeling of obligation to continue employment. Employees with a high level of normative commitment feel that they **ought** to remain with the organization. ([Meyer & Allen, 1991](#); [Meyer & Allen, 1991, p. 67](#)).

The three components are developed in different ways to have different implications for the behavior of individuals. The antecedents of continuance commitment are not clearly indicated in the literature ([Siqueira & Gomide, 2014](#)), but according to [Powell and Meyer \(2004\)](#), it is expected that this develops in response to conditions that increase the cost of leaving the organization, whereas for affective commitment, it is expected that it arises due to experiences at work, such as scope of work and organizational support. However, the normative commitment tends to develop in response to social pressure and it has two main mechanisms of development: socialization experiences and reciprocity of organizational investments.

For [Powell and Meyer \(2004\)](#), with respect to the consequences, affective and normative commitment tend to have a positive effect on desired behaviors as performance and behavior of organizational citizenship, with the effect of the former stronger than the latter. Nevertheless, the continuance commitment presents negative impact on these behaviors. [Powell and Meyer \(2004\)](#) also point out that different studies have provided support for several of the early predictions, but it is necessary a systematic investigation of the development of instrumental commitment.

### *The instrumental commitment and the side-bet theory*

One of the predecessor authors of the three-dimensional model of organizational commitment was Howard S. Becker, an American sociologist who analyzed commitment as the linking of individual extraneous interests with a consistent line of

activity. In the case of organizational commitment, according to Powell and Meyer (2004), the consistent line is to stay in business. Therefore, according to Becker (1960), for full understanding of the commitment, it is necessary a value analysis system, in which the lateral exchange occurs (side bets).

Becker (1960) proposes that lateral exchanges can occur in different ways: (a) the individual can make lateral exchanges, due to widespread cultural expectations or to expectations of important groups concerning what constitutes responsible behavior, involving penalties for violating them; (b) by means of impersonal bureaucratic arrangements, which are rules or policies implemented by the organization to encourage or reward the employee in the long run; (c) the concern with self-presentation, manifested when a person tries to present a consistent public image that requires particular behavior; (d) the individual settings for corporate positions, which refer to the efforts of an individual to adapt to a situation, and which on the other hand make it less suitable for others; and (e) external concerns relating to lateral changes made outside the organization, such as an employee's establishment of ties with the community, which would be interrupted if he/she left the organization and was forced to seek employment in another geographical location.

Powell and Meyer (2004) describe that the first empirical test of Becker's theory was conducted in 1969 by Ritzer and Trice, who developed a questionnaire in which participants discussed their intentions to leave the organization and their incentives to do so. Powell and Meyer (2004) also cite the research by McGee and Ford (1987), who conducted a factor analysis of instrumental commitment and identified two interpretable factors: Perceived Sacrifices Associated with Leaving, and lack of alternatives. The first factor is considered by McGee and Ford (1987) as the closest vision of commitment presented by the theory of side bets. The second factor, lack of alternatives, was considered by Allen and Meyer (2000) as an antecedent of continuance commitment and not a part of the construct itself.

Cohen and Lowenberg (1990) contended that the results of previous studies allow generalized conclusions about Becker's theory, and through a meta-analysis they examined past performance of relevant correlational data from 50 published studies on lateral exchanges. The results showed that the side bet variables have low correlation with organizational commitment, allowing the conclusion that there is little empirical support for the theory of lateral exchange. Rodrigues and Bastos (2011a), in order to criticize the dimensionality of the continuance commitment, highlight the problems of validity and measurement reliability, since the results of different studies are conflicting and because the scale measures, in addition to commitment, one of its contributing factors, namely lack of alternatives. Solinger, Olfen, and Roe (2008) suggest that the continuance commitment should be seen as an antecedent of commitment and not as one of its dimensions.

Attempts to resolve the conceptual empirical problems on organizational commitment are diverse, with researchers suggesting that the construct should be considered one-dimensional (Solinger et al., 2008; Klein, Molloy, & Cooper, 2009; Rodrigues & Bastos, 2010), or two-dimensional (Cohen, 2007). The researchers who advocate the one-dimensionality of

organizational commitment claim that the affective dimension is what most characterizes the construct and that the other bases – normative and continuance – measure distinct commitment bonds, for example the overlap between continuance commitment and the construct of organizational entrenchment (Rodrigues & Bastos, 2011a). However, Cohen (2007) proposed that organizational commitment has two dimensions: instrumental and affective.

With the aim of addressing the shortcomings of the existing side-bet measures, Powell and Meyer (2004) made refinements on two measures, based on literature review: the scale of continuance commitment, and measures of side-bets of Shore et al. (2000). Powell and Meyer (2004) began the refinement by creating, preliminarily, an expanded and more reliable version of the factor of Perceived Sacrifices Associated with Leaving, since the original one had few items and lower reliability than desirable ( $\alpha = .70$ ). They also made some adjustments to the extent of the side bet, reviewing some items and developing new ones in some categories in order to make clear distinctions among the categories of side bet, especially for generalized cultural expectations and self-presentation concerns.

The other goal of Powell and Meyer's research (2004) was to test the theory of side bets within the broader context of Meyer and Allen's three-dimensional model. The results provide strong support for Becker's theory, because the measures of all five categories correlated significantly with the perceived sacrifice factor associated with leaving and with the intention to change. It also supports the argument that there may be both social and economic costs associated with leaving the organization, and that some of the leaving costs come from side bets external to the workplace, such as investments in family and community that hinder the exit. Bureaucratic arrangements and individual settings contribute to the economic costs, whereas expectations and concerns about self-presentation are social in nature.

It was also found that satisfaction with working conditions – a factor more associated with affective commitment – is also perceived as a cost of exit. Finally, the perceived lack of alternatives also correlates significantly with continuance commitment. Powell and Meyer (2004) point out that the side bets which reflect social costs are more strongly correlated with the normative commitment than with continuance commitment.

Regarding the three-dimensional model, Powell and Meyer (2004) claim to have developed a more reliable measure of the factor "perceived sacrifices associated with leaving", and highlight that the continuance commitment scale is two-dimensional; subscales of the "perceived sacrifice factor associated with leaving" and "lack of alternatives" reflect distinct, though related, constructs. Powell and Meyer (2004) also recommend that the measure of six items of the factor of "perceived Sacrifices Associated with Leaving" be used in future research concerned with the three-dimensional model.

## Methods

If no suitable research tool exists in the language of the target population for measuring a given construct, researchers have

two options: (a) develop a new measure; or (b) modify a measure already validated in another language, following a process of cultural adaptation (Guillemin, Bombardier, & Beaton, 1993). The goal of a linguistic validation process is to obtain a translation of an instrument to another language that is both conceptually equivalent and easily understood by the people of the country where the questionnaire will be applied.

The instrument proposed by Powell and Meyer (2004) has not been validated in Brazil yet, and since it was formulated in English, it requires translation and cultural adaptation for its psychometric properties to be evaluated in the Brazilian context. In a literature review of methods to translate quality of life scales related to health published between 1966 and May 2005, Acquadro, Conway, Hareendran, and Aaronson (2008) found 17 procedures. Of those, only three are analyzed by the authors, these being the only ones that were not developed for a particular instrument and that can be applied to any type of scale.

The first method presented was proposed by Guillemin et al. (1993) and Beaton, Bombardier, Guillemin, and Ferraz (2000), and is divided into five stages: (a) translation; (b) synthesis of translations; (c) back-translation by qualified personnel; (d) expert review committee; and (e) pre-test for equivalence using proper techniques. The authors also suggest the submission of documentation to the scale developers or coordinating committee for evaluation of the adaptation process. The second method, developed by the MAPI Research Institute, is similar to that proposed by Beaton et al. (2000), but adds a step called International Harmonization, where the original questionnaire is translated into several languages simultaneously after testing the pre-final version (Acquadro et al., 2008). The last method presented is the one proposed by Swaine-Verdier, Doward, Hagell, Thorsen, and McKenna (2004), who argue that there is no evidence that the method of translation and back translation can be considered the best method for cultural adaptation, which is why the authors propose an alternative method that uses double-conversion panels.

The proposed method emphasizes the accuracy of the translation, done by several independent translators (five to seven) with varying profiles, and working as a team. From the review, Acquadro et al. (2008) conclude that researchers must choose to adopt approaches with different stages as a guarantee for quality. Considering that the method of Guillemin et al. (1993) and Beaton et al. (2000) has the characteristics indicated by Acquadro et al. (2008), and because translation into languages other than Brazilian Portuguese is not required, we decided to use the method proposed by Guillemin et al. (1993) and Beaton et al. (2000).

Manzi-Oliveira, Balarini, Marques, and Pasian (2011) suggest that articles whose purpose is the adaptation of psychological assessment instruments should present their procedures (in addition to translation, the analysis of the accuracy, and validity of the measure). For this reason, the process of translation and adaptation of the scale and obtaining evidence of their validity in the Brazilian context for the sample used will be detailed.

## Measure

We translated and adapted the scale developed by Powell and Meyer following the procedure proposed by Guillemin et al. (1993) and Beaton et al. (2000). The scale consists of six items with a five-point Likert format indicating different degrees of agreement with the statements.

One of the authors of this paper conducted a translation, which was compared to the translation done by a translator with a degree in English Literature, and the version translated by a Psychology research group. After the evaluation of the translations, a preliminary version synthesized from the three draft was developed. In item 1, we chose to replace the phrase “work somewhere else” with “get out of this organization,” given that the teacher of a public school, when working in an arrangement of 20 or 40 h per week, might have more than one job.

After drawing up the preliminary version for the translation of the scale, a back-translation was carried out, i.e. the translation of the preliminary version into the original language, done by translators unaware of the content of the original instrument nor of the independent translations, and who are fluent in both languages and have knowledge of colloquial forms of the original language version (Beaton et al., 2000). This step verifies that the preliminary version reflects the content of the original scale. Following these guidelines, the back-translations were made by two independent Brazilian translators, one having a degree in English and the other having a degree in English and working as an English to Portuguese interpreter in Canada, home country of the translated scale. Back translations displayed a satisfactory approximation to the original version, reflecting its contents and intentions.

In the third step of the process of translation and adaptation, a report with the results of the previous steps was sent to a review committee made up of five researchers: three from the field of Administration and two from the field of Psychology. As committee members, the researchers assessed the clarity, relevance, and equivalence of the translated items, following the recommendations of Beaton et al. (2000). After examining the suggestions made by this committee, a new version was drafted and underwent Portuguese review.

The fourth stage is the pre-testing of the scale, which was conducted using the online tool Survey Monkey<sup>®</sup>. An e-mail with an invitation to attend the pre-test, indicating the Internet address where the questionnaire was available, was sent to teachers at the Instituto Federal do Mato Grosso (IFMT), Instituto Federal da Bahia (IFBA), and Instituto Federal Baiano (IFBaiano). The invitation was also sent to some researchers from other institutions of higher education, so that they could assess the clarity and understanding of the items. Twenty-two teachers answered the instrument online and five researchers evaluated and commented on the items (debriefing).

The comments from respondents showed that the items were clear. However, in relation to one of the items, the teachers pointed out the need to make more explicit which aspects should be taken into account for the response. Therefore, it was decided

to add some examples that could be taken into account by the respondents.

### Sample

The final version of the questionnaire was made available through the online tool Survey Monkey®, and the link to access it and the invitation message were sent by electronic mail to the 1191 teachers of the Instituto Federal do Espírito Santo, out of which 415 teachers completed the questionnaire after agreeing to the Terms of Consent. The sample had a mean age of 28.48 (SD = 18.28) and the average time of service at the school was 4.42 years (SD = 8.61); 67.47% were male, 67.47% married, 48.19% had a Master's Degree, and 77.59% were full-time employees of the school.

In this study, it was decided to conduct the cross-validation procedures. The database was divided into two samples, randomly selected: Sample 1 included 208 teachers, and Sample 2 included 207 teachers.

### Procedures

In a bibliographical survey on cross-cultural adaptation studies of psychological assessment instruments in Brazil, Manzi-Oliveira et al. (2011) found that 60% of the studies they examined conducted an analysis of validity of the adaptation of the instrument. This amount is considered low as compared to the importance of such an analysis, which provides evidence and a theoretical basis for its intended use.

One of the most important data analysis methods in the validation process of an instrument is the factor analysis. It is a multivariate technique used in order to synthesize the observed relationships between a set of inter-related variables, and thus, identify common factors (Fávero, Belfiore, da Silva, & Chan, 2009).

Hair, Black, Babin, Anderson, and Tatham (2009) state that, in this method, the minimum number of observations in the sample should be 100. In addition, the sample must use a minimum of 5 times more observations than the number of database variables, and the recommended number is 10 observations per variable. The instrument discussed in this article is composed of six items and we obtained 415 observations; therefore, the database meets the requirement. However, other criteria must be met for the use of factor analysis. There must be sufficient correlation values between the high variable to justify the use of this technique. Moreover, the observed correlations between variables can be reduced by deviations in the normal range and linearity, which is harmful to the solution (Hair et al., 2009). This last assumption is contested by Pasquali (2004), for whom the factor analysis is robust to violations of normality. Initial analyses showed that the sample data met the conditions for proceeding to the factor analysis (Pasquali, 2004; Tabachnick & Fidell, 2007; Hair et al., 2009).

After obtaining evidence of the validity of the psychometric properties of the scale, we performed a descriptive statistical analysis and tests of differences among means, through Student's *t*-test and one-way analysis of variance (ANOVA) in order to

evaluate the differences between segments of the sample (gender, marital status, age, time of service at the school, training level, training area, campus, and holding a management position or not). Any differences that presented a *p* value lower than 0.05 were considered statistically significant.

## Results and discussion

In this section, we present the results of obtaining evidence of the validity of the scale in the Brazilian context, and then we analyze and discuss the results.

### Obtaining evidences of the validity of the psychometric properties of the scale

We performed exploratory factor analysis through the Principal Axis Factor with eigenvalue more than 1. About the choice of the rotation method, Hair et al. (2009) claim that there is not a specific rule, but the method definition should be made in accordance with the particular needs of the research problem. For Hair et al. (2009), the orthogonal rotation should be employed when the objective is to reduce the number of original variables or when we want to reduce a greater number of variables into a smaller set of uncorrelated variables for subsequent use in regression or other prediction rules. Oblique rotation is used to obtain theoretically significant factors. This type of rotation represents the grouping of variables with greater accuracy. For the sake of this research, we opted for the oblique rotation method (Oblimin).

The result had the same original structure with one dimension of six items. The one-dimensionality of the construct was confirmed by graphical analysis of the Scree Plot (Fig. 1).

However, since the identification of the number of factors becomes confused in cases where the cutoff point is not very clear, it renders the choice of the number of factors to be retained subjective and ambiguous (Hayton, Allen, & Scarpello, 2004), so we also executed the Parallel Analysis Method – Optimal

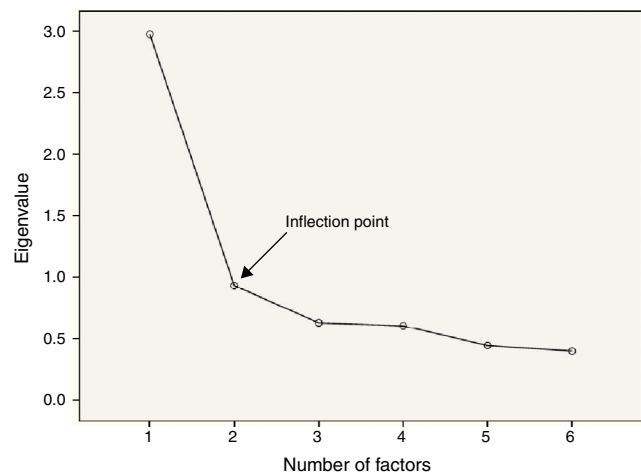


Fig. 1. Scree Plot to determine the number of factors of the Scale of Perceived Sacrifices Associated with Leaving.

Source: Research database.

Table 1  
Psychometric properties for the model of six and four items.

	Model 1 (six items)		Model 2 (four items)	
	Sample 1	Sample 2	Sample 1	Sample 2
KMO	0.837	0.84	0.787	0.79
Total variance explained	49.71%	49.65%	62.74%	62.94%
Cronbach's alpha	0.783	0.783	0.8	0.802

Source: Research database.

Implementation of Parallel Analysis (Timmerman & Lorenzo-Seva, 2011). We performed a factor analysis using FACTOR 10.03.01 software, and the Parallel Analysis indicated a single factor, confirming the results found in other analyzes.

The correlation matrix has a determinant of 0.192, KMO=0.837, allowing the application of factor analysis. The significance level of the Bartlett test of sphericity (sig. <0.001) leads to the rejection of the hypothesis that the correlation matrix is the identity, indicating therefore that there are correlations among variables which support the use of factor analysis. The factor explains 49.71% of the total variance, and we obtained Cronbach's alpha ( $\alpha$ ) equal to 0.783, a satisfactory value. Regarding the structure, the same was revealed in Sample 2, which showed the determinant equal 0.197, KMO=0.84, sig. <0.001 and  $\alpha$ =0.783. The factor explains 49.65% of the total variance.

The Measure of Sampling Adequacy (MSA) is greater than 0.5 for all variables in both samples, which indicates that none of the variables eventually deserve to be eliminated. However, in Sample 1, in the analysis of the commonalities, the HS1 item ("I have invested too much time in this organization to consider working elsewhere.") presents a value lower than 0.5 (0.404), which suggests that it should be extracted from the scale. After a new extraction of factors, HS6 item ("I continue to work for this organization because I don't believe another organization could offer the benefits I have here.") showed commonality of less than 0.5 (0.462) and so it was also extracted. Again, we realized the exploratory factor analysis, now with four items, and we obtained KMO=0.787, sig. <0.0001, and MSA greater than 0.5 for all variables. All items showed commonalities greater than 0.5. The factor explains 62.74% of the total variance and we obtained  $\alpha$ =0.8.

The commonalities of analysis for Sample 2 had values below 0.5 for HS1 and HS6 (0.274 and 0.336, respectively), confirming the results obtained with the analysis of Sample 1 regarding the elimination of items. Exploratory factor analysis with the exclusion of the items revealed KMO=0.79, sig. <0.0001 and MSS greater than 0.5 for all variables. All items showed commonalities greater than 0.5. The factor explains 62.94% of the total variance and we obtained Cronbach's alpha equal to 0.802. Table 1 summarizes the main psychometric properties for the model with six and four items.

For both models, the reliability of the instrument is higher than the original version, similar to the results found by Powell and Meyer (2004), which reinforces the authors' suggestion that the three-dimensional model be used in research. As can be seen, the model of four items presents psychometric properties better

than the initial models for both samples with six items, revealing a larger reliability and considerably increased explanation. For this reason, despite possible limitations to the study, we opted, because of the best psychometric properties, for the extraction of the two items.<sup>1</sup>

### Descriptive analysis of the results

The teachers of the sample have a higher-than-average perception of the sacrifices associated with leaving (Mean=3.44 and Standard Deviation=1.89). In order to check for differences between the averages of perceptions among subgroups of the sample, we compared the means for independent samples using an independent *t*-test based on gender, and among teachers who hold management positions (coordination or direction) and those who do not, and ANOVA, based on marital status, age, average time of service at the school, level of education, and campus (Table 2).

The results of the Student's *t*-test and ANOVA indicated no significant differences in gender (sig.=0.067 and eta squared=0.008); marital status (sig.=0.87 and eta squared=0.03); age (sig.=0.762 and eta squared=0.001); average time of service at the school (sig.=0.161 and eta squared=0.08); level of education (sig.=0.103 and eta squared=0.02); and campus (sig.=0.558 and eta squared=0.04), demonstrating that the perception of the sacrifices associated with leaving is independent of these characteristics in the sample studied. Despite the non-significant difference identified between male and female, we can observe that the mean of females (3.58) is higher than the mean of males (3.37), confirming the tendency indicated by Mathieu and Zajac (1990) that females are more committed than males. The same can be said with regard to marital status, according to which single people have the lowest perception of sacrifices associated with the leaving.

From the comparisons of means made, we found statistically significant differences only between teachers who hold management positions and those who do not (sig.=0.034 and eta squared=0.001). The teachers in management positions display a perception of sacrifices associated with leaving with greater intensity than the teachers who work only in the academic area. Table 3 shows the means of the indicators that make up the construct.

<sup>1</sup> The original version of the items of the scale and the final version (in Portuguese) are presented in Jesus (2016) and Jesus and Rowe (2014).

Table 2  
Means of perception of sacrifice associated with the leaving by personal characteristics.

Variable	%	Mean of perception of sacrifices associated with leaving
<b>Gender</b>		
Male	67.47	3.37
Female	32.53	3.58
<b>Marital status</b>		
Single	22.89	3.30
Married	67.47	3.39
Widow(er)	0.48	3.38
Separated/divorced	6.51	3.41
Others	2.65	3.41
<b>Age</b>		
Up to 25	27.23	3.50
Between 26 and 35	30.12	3.40
More than 36	42.65	3.42
<b>Average time of service at the school</b>		
Less than 5 years	68.43	3.41
Between 5 and 10 years	18.56	3.33
More than 10 years	13.01	3.22
<b>Level of education</b>		
Graduation	6.75	3.24
Specialization	19.28	3.39
Master's degree	48.19	3.35
Doctorate degree	25.54	3.43
Postdoctoral	0.24	2.25
<b>Campus</b>		
Campus 1	4.58	3.74
Campus 2	3.61	3.28
Campus 3	6.02	3.45
Campus 4	2.89	3.38
Campus 5	6.26	3.45
Campus 6	6.51	3.41
Campus 7	4.34	3.25
Campus 8	7.23	3.45
Campus 9	4.58	3.39
Campus 10	2.41	3.45
Campus 11	4.10	3.51
Campus 12	6.26	3.30
Campus 13	4.10	3.09
Campus 14	9.16	3.39
Campus 15	5.06	3.43
Campus 16	2.89	3.13
Campus 17	20.00	3.28
<b>Management position</b>		
Yes	19.76	3.52 <sup>a</sup>
No	80.24	3.33

Source: Research database.

<sup>a</sup>  $p < 0.05$ .

Among the means presented, we highlight the differences between the means of the HS4 indicator. This can be explained by the fact that the teachers who are in management positions have greater benefits when their bonuses are taken into account, and also by the possible loss of status in the event of leaving the organization.

We can also see that the only indicator in which the perception of sacrifice associated with the leaving is perceived with

Table 3  
Means of indicators of perception of sacrifice associated with the leaving – management position.

Indicator	Having management position	Not having management position
HS2: Leaving this organization now would require considerable personal sacrifice.	3.82	3.44
HS3: For me personally, the costs of leaving this organization would be far greater than the benefits.	3.61	3.45
HS4: I would not leave this organization because of what I would stand to lose.	3.95	3.53
HS5: If I decided to leave this organization, too much of my life would be disrupted.	2.70	2.91

Source: Research database.

greater intensity by those teachers who do not hold management positions is HS5, demonstrating the concern of teachers with the possible setback to their careers.

## Conclusions and recommendations

The three-dimensional model of organizational commitment proposed by Meyer and Allen (1991) is the most widely-used in research on commitment, although it has received much criticism regarding conceptual and empirical problems. One of these problems is the consideration that the instrumental commitment should not be considered one of the dimensions of organizational commitment. In order to refine the model, Powell and Meyer (2004) developed a scale regarded as more reliable to measure the instrumental commitment, the Scale of Perceived Sacrifices Associated with Leaving, which has not been used in Brazil until the present study.

The aim of this article was to translate, adapt and obtain evidence of the validity of the scale in the Brazilian context, as the authors recommend its use in research employing the three-dimensional model (Powell & Meyer, 2004), and its translation and adaptation is essential for this scale to be used among Brazilian workers. Moreover, we analyzed how teachers perceive the sacrifices associated with leaving a position at a Federal Institute of Education, Science and Technology.

The process of translation and adaptation followed the procedures recommended by Guillemín et al. (1993) and Beaton et al. (2000), and after writing the final version of the instrument it was applied to two samples composed of 208 and 207 individuals. We used the cross-validation procedure, and the two samples were submitted to Exploratory Factor Analysis, which ensured the validity of the construct for the sample, reducing the six variables to a smaller dimension (four variables) in both analyses. The results suggest a good internal consistency and good reliability. Next, the samples were subjected to the



Confirmatory Factor Analysis in which all fit indexes showed satisfactory values, confirming that the model with four items is appropriate. Regarding these results, we can conclude that teachers participating in this study positively perceive the sacrifices associated with leaving, since the mean level was higher than the midpoint. Marques, Borges, Morais, and Silva (2014), in a survey conducted among civil servants of Minas Gerais, also found high levels of instrumental commitment in the sample. This result can be explained by the fact that public servants, such as the teachers in this sample, consider stability to be one of the important factors behind remaining in the organization. Similar results were found by Botelho and Paiva (2011), who conducted research among public servants of the Court of Justice of Minas Gerais. They found that stability was the main reason for the permanence of the workers in the institution studied. Similarly, Rocha and Honório (2015) reported stability, freedom, and the tranquility of working in the public sector as aspects linked to the instrumental dimension.

When comparing the mean between teachers who hold management positions and the others, we found that teachers with management positions perceive a higher degree of sacrifices associated with leaving. This result can be explained by the fact that teachers with management positions have more to lose than the others, both in terms of financial rewards and non-financial losses – in the specific case, the *status quo* position. This result is aligned with Leite's findings (2007), who identified that workers in commissioned functions have a higher intensity of the instrumental component of the commitment than other workers. He found that the occupancy of commissioned function among public servants of Universidade Federal da Bahia had the highest predictive value of instrumental commitment when compared to gender, marital status, area of expertise, and exclusive bond with the organization.

Among the participants of this research, the teachers not occupying management positions had a higher intensity of instrumental commitment only on the indicator that relates career plan to losses due to the decision to leave the organization (HS5: If I decided to leave this organization, too much of my life would be disrupted.). In the institution studied, the career plan and career progression is clearly defined and known by all employees, which may have led to a perception of a high degree of intensity of this Human Resource Management policy for teachers with no managerial role. This in turn may have led to a greater intensity in the perception of sacrifice associated with the leaving, since the perception of Human Resource Management policies is considered to be one of the antecedents of the organizational commitment (Legge, 2005; Demo, Martins, & Roure, 2013; Jesus & Rowe, 2015).

The version of the Scale of Perceived Sacrifices Associated with Leaving translated into Brazilian Portuguese showed good psychometric properties when applied to the two samples. However, the proposed changes should be evaluated since the sample was composed of individuals with homogeneous characteristics from the same organization. So, further studies to confirm the results found are critical. This study was conducted among teachers of a Federal Institute of Education, Science and Technology, in which teachers work in different levels of education,

from high school to graduate school. That opens possibilities of reapplication of the scale in a range of university teachers and also in other categories, such as professionals in the creative industry.

We suggest that the one-dimensional scale be preferably used in conjunction with other scales, such as the affective organizational commitment scale. It can also be added to the normative commitment scale. Currently, the quantitative research on organizational commitment involving affective and instrumental scales have linked commitment to other variables such as Human Resource Management policies and perceived organizational justice, which in general have scales with large numbers of items, making the survey long and tiring for the respondent. In this context, we emphasize the importance of a scale with four items, which allows the inclusion of several other variables in future research.

The relevance of this article is that the cross-cultural adaptation takes into account the cultural differences among countries, making it possible to compare the object of study among countries, allowing the exchange of information within the international scientific community. The cross-cultural adaptation performed in this study ensured that the instrument's measurement aspects are reliable and undistorted for Brazilian sociocultural reality, as it sought to follow certain methodological severities.

The studies aiming at the systematic research on the development of instrumental commitment and on their antecedents are considered by Powell and Meyer (2004) and Siqueira and Gomide (2014), to be a gap in the studies on organizational commitment, considering that most of the research focuses on the affective dimension of commitment. The importance of further studies on this dimension of organizational commitment lies in the fact that it tends to have negative effects on desired behaviors to the worker (Powell & Meyer, 2004).

This study opens up other future prospects, such as analyzing the relationship of the new instrument scale with variable of Human Resource Management policies, organizational justice, and quality of work life. Another perspective lies in checking the relationship of the instrument with consequent variables such as job performance. Given the discussion within the literature whether the instrumental dimension is a commitment or not (Rodrigues & Bastos, 2011a), further research would involve this scale, the organizational commitment scale by Meyer and Allen (1991), and the scale of organizational entrenchment (Rodrigues & Bastos, 2011b), in order to deepen the discussion.

### Conflicts of interest

The authors declare no conflicts of interest.

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