

# Organizational Support for Entrepreneurial Orientation: The Perception of Professionals from Early Childhood Education Centers in Brazil

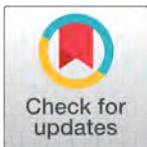
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## ABSTRACT

Entrepreneurial Orientation (EO) has become increasingly prominent in the public sector and in educational organizations. A policy for educational management based on EO has dimensions related to innovation, proactiveness, and risk-taking, which are preceded by organizational characteristics such as management support, discretion/autonomy, rewards/recognition, organizational boundaries, and time availability. The objective of this study is to analyze the organizational characteristics that influence EO in Municipal Centers for Early Childhood Education (*Centros Municipais de Educação Infantil - CEMEI*s) in Brazil. The study was conducted in a town in the state of Minas Gerais and involved 15 CEMEIs, applying questionnaires to education professionals as coordinators, monitors, and teachers, whose data were processed using descriptive statistics and a structural equation model. The results present a construct for validating organizational characteristics that can influence EO in public early childhood education organizations. However, autonomy and management support were the determinants of EO in the organizations studied. Finally, there are implications and considerations for policies and strategies in public educational organizations, indicating EO as a way to deal with contingencies, resource scarcity, the stimulation of (intra)entrepreneurial culture and even potential early childhood education for entrepreneurship.



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## 1 INTRODUCTION

Organizations have turned to intrapreneurship as a way to grow, develop, and revitalize (Blanka, 2019; Emmendoerfer, 2019). Intrapreneurship refers to entrepreneurial individuals who act within organizations for the innovation of products, processes, or services, new businesses, organizational self-renewal, recognition and exploitation of opportunities, proactiveness, risk-taking, and deviations from existing practices in the organization (Corrêa, Queiroz, Cruz, & Shigaki, 2022). From this perspective, there are several theoretical

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approaches to understanding this phenomenon, such as entrepreneurial orientation (EO).

EO is a strategic direction in which actions are carried out in organizations to foster a climate favorable to the development of entrepreneurial activities (Blanka, 2019) and to make it possible to understand the causes and consequences of being entrepreneurial in organizations (Chowdhury & Audretsch, 2021).

According to Miller (2011), whose studies contribute to the public sector, EO is a unidimensional strategic posture with corporate origins that involves at least three dimensions: innovation, proactiveness, and risk-taking. Miller (2011) argues that an organization with EO is one that is prepared to take risks when introducing an innovative product (good or service), requiring proactive behavior to overcome its barriers and difficulties.

Moreover, given the growing need to improve the availability and quality of public services, there has been a gradual appropriation and resignification of elements of entrepreneurship in the public sector (Lacerda & Andrade, 2021), such as EO, with the scope of addressing management and stakeholder demands in an effective, agile, creative, and innovative way (Kearney, Hisrich, & Roche, 2008), generating public value for communities and societies (Lacerda & Andrade, 2021). It is important to note that while the EO construct is a validated and reliable measure in the private sector, there is no equivalent measure in the public sector (Meynhardt & Diefenbach, 2012) for developing countries. This can make Public Entrepreneurship as a public management model possible and capable of dealing with the complexity of public problems (Weiss, 2021) to provide fundamental rights.

Education is one of those fundamental rights defended by the United Nations (UN). The right to education is provided for in the Universal Declaration of Human Rights of 1948. Its relevance is reiterated as one of the Sustainable Development Goals (SDGs) of the UN's 2030 Agenda. According to the UN (1948/2022), primary education should be free and compulsory to promote inclusion and economic, social, and cultural development.

Entrepreneurship can thus contribute to the field of educational management (Fitz, 1999) and result in relevant public policies and services that must be gradually (re)adjusted based on the dynamics of society and globalized relations. This creates challenges and places demands on the educational system, requiring those institutions and their educational managers to constantly be reinventing themselves and improving (Riveros & Wei, 2019), even in early childhood education (Jufri & Wirawan, 2018), where public services must be exemplary and high quality, as it is the beginning of the formal educational process of future citizens.

In this regard, Currie (2001) mentions that investments in early childhood education policies and programs have significant benefits in the short to medium term, with the greatest effects on children who are more socioeconomically vulnerable, reducing their dependence on the welfare state and on illicit actions such as crime. However, even with this recognition, there are still many advances to be made, including research on the educational management of public early childhood education organizations and theoretical approaches to entrepreneurship in the public sector, such as EO for educational managers, rather than only teachers, which is still scarce.

In addition, in the Federative Republic of Brazil, basic education for people aged between 4-17, and early childhood education - care for children aged zero to six in daycare centers and preschools - is a right guaranteed by your National Constitution of 1988 (Constituição da República Federativa do Brasil de 1988 [CF88], 2022). The Federal Government, in co-participation with local governments, are responsible for establishing the competencies and guidelines for the provision of Early Childhood Education, including publicly and free of charge for the most vulnerable population in socioeconomic terms.

Accordingly, the following research questions were posed: What is the influence of organizational characteristics on EO in public early childhood education, specifically, from the perception of professionals who work in educational centers? How is this present in the Brazilian context? Educational management in Brazil encompasses educational systems at the “federal, state, and municipal levels; the responsibilities of the Union, the States, and the Municipalities; the different forms of interaction among the normative, deliberative, and executive entities in the educational sector; and the provision of school education by the public and private sectors” (Vieira, 2011, p. 60). From this perspective, each system is responsible for an educational context, and municipalities — the focus of this study — are responsible for managing the institutions related to early childhood and primary education (CF88, 2022).

The educational management of municipalities is carried out by the Secretary of Education, who defines the actions, projects, and programs to be undertaken in conjunction with the educational policies and plans defined by federal and state agencies (Vieira, 2011), such as Municipal Centers for Early Childhood Education (CEMEIs), primarily serving children from 0 to 3 years old (day care centers). This study will focus on CEMEIs because they play an important role not only in terms of providing care and protection but also in early childhood development.

To answer the research questions, a central objective was defined: to identify and analyze the organizational characteristics that influence EO in CEMEIs from the perception of the professionals who work there. The study sought to validate a construct for this analysis, aiming to create a starting point for regional, national, and international comparative studies as well as for educational policies and actions in the field of early childhood education. Importantly, previous studies are related to public policies, financing, and investment in education, socioeconomic inequality, and the equalization of educational opportunities (Vieira, 2011), indicating that there is a need for this study, as it investigates education based on new approach as EO.

This paper is divided into five sections, in addition to this introduction. The next section provides a literature review that essayistically proposes to theoretically link educational management and EO in the public sector, focusing on organizational characteristics to define the analytical construct in early childhood education. The third section addresses the methodological procedures employed and the construct applied. The subsequent sections present, discuss and identify the considerations related to validating the construct of organizational characteristics that influence the EO of people working in public early childhood education in the Brazilian context.

## 2 EDUCATIONAL MANAGEMENT AND EO IN PUBLIC ORGANIZATIONS

The first studies to consider the entrepreneur in educational management date back to the 1980s and 1990s (Boyett & Finlay, 1993), a period during which there were different administrative reforms and actions to modernize public administration, involving educational policies from different countries, including those in Ibero-America, some of which are still in place and others that are being re-examined. This demanded more appropriate practices and routines in public organizations to deal with the new institutional and social demands, which increased the interest, appropriation, and resignification of Public Sector Entrepreneurship (PSE) (Weiss, 2021).

The expressions and manifestations of entrepreneurship in public sector organizations by public servants and employees, permanent or temporary, can be analyzed from the perspective of EO as a strand of intrapreneurship theory (Blanka, 2019; Meynhardt & Diefenbach, 2012) in studies on educational organizations.

### 2.1 EO in the Education and Development of Entrepreneurship Educational Projects Context

In the field of educational management, the EO approach has been primarily used, but not exclusively, to understand public sector intrapreneurship in higher education institutions (Cruz, Ferreira, & Kraus, 2021) and high schools / secondary education (Rudberg, 2022). Even before the EO became an object of scientific study in the field of education, it was already something encouraged and practiced through global business educational projects such as Junior Achievement (Alves, Klaus, & Loureiro, 2021; Hiiemäe-Metsar, Raudsaar, & Uibu, 2021) in schools where education professionals needed to develop entrepreneurial skills to carry out such projects. Likewise, this has occurred in the quest for universities to become recognized or ranked as entrepreneurs (Feola, Parente, & Cucino, 2021), where educational projects such as the junior enterprise movement (Khader, Cademartori, & Lund, 2022; Palassi, Martinelli, & Paula, 2020) have contributed to disseminating EO in all knowledge areas into higher education.

However, it has been argued that studies on EO and early childhood and primary education are scarce and emerging, which makes the present study original and potentially able to make a contribution by focusing on the public sector as well as demystifying the notion of entrepreneurship in education beyond that centered on business, privatization, commodity, and profit (Correa, 2020).

Thus, it is possible to understand EO in public early childhood education organizations by analyzing its dimensions: innovation, proactiveness, and risk-taking (Karyotakis & Moustakis, 2016; Kearney & Meynhardt, 2016). According to Corrêa et al. (2022), innovation is an organization's willingness to support new ideas, developments, and creative processes that will result in new products, processes, and services; proactiveness, in turn, is an organization's ability to anticipate future needs; and, risk-taking is the willingness to take risks on projects that have a chance of failing. EO in the public sector, modified by Kearney

and Meynhardt (2016), is demonstrated by the extent to which (educational) managers are inclined to:

[...] favor change and innovation for the organization (the innovation dimension), to take business-related risks (the risk-taking dimension), and to take proactive strategic action (the proactiveness dimension) in order to achieve goals and objectives for the greater good of society at large.

*Kearney and Meynhardt, 2016, pp. 20-21*

It is possible to add two dimensions to the EO proposed by Miller (2011): autonomy and aggressiveness. Autonomy is the freedom of individuals to create by generating new ideas and, as a result, developing new ventures, and aggressiveness is the response of organizations seeking to dominate the competition. These dimensions can be applied to public organizations, in which the state normally has the majority or exclusive share of ownership and therefore also of the decisions about the organization's strategic direction.

According to Kearney and Meynhardt (2016), EO is influenced by characteristics that influence entrepreneurial behavior and, consequently, intrapreneurship. Intrapreneurship should thus be understood as a link between the organizational level and the individual level. For Aggarwal and Chauhan (2022), this is necessary to create the conditions for inserting EO as an inductor of entrepreneurship educational projects.

## 2.2 Organizational Support for EO

In the organizational context, different organizational characteristics are emphasized: communication, formal controls, organizational support, and values related to competitiveness and the individual. Open communication for information sharing and formal controls refer to the methods used to monitor entrepreneurial activities (Antoncic & Hisrich, 2003). Organizational support is seen as a crucial element that refers to the involvement of management through support and rewards, which is not so different from educational organizations (Aggarwal & Chauhan, 2022). With regard to values, both individual-centered and competition-related values are drivers of intrapreneurship (Blanka, 2019; Zahra, 1991). According to Antoncic and Hisrich (2003), entrepreneurial behavior derives from the characteristics, values, beliefs, and visions of an organization's leaders; entrepreneurship thus depends on the attitude of those leaders, as these values enhance innovation within organizations.

Sadler (2000) identified the following organizational characteristics: structure, size, culture, degree of specialization, centralization of decision-making, clarity of performance objectives, system of rewards and sanctions, and degree of autonomy. Kim (2010) also sought to examine the organizational characteristics that influence EO in the public sector: hierarchy, formalization, flexibility, size, autonomy, specialization, participatory decision-making, and performance-based rewards. The studies such as Kearney et al. (2008) and Kearney and Meynhardt (2016) considered the following organizational characteristics: structure/formalization, decision-making, control, and rewards/motivation.

Meynhardt and Diefenbach (2012) examined the antecedents of entrepreneurial orientation in the public context to understand how EO can be achieved by public administration. From this perspective, they used organizational characteristics based on the research instrument developed by Hornsby, Kuratko, and Zahra (2002), known as the Corporate Entrepreneurship Assessment Instrument (CEAI), which has been widely applied and validated by the specialized literature. These studies have inspired papers such as that by Urban and Nkhumishe (2019), who assessed three organizational antecedents (culture, structure, and rewards) linked to the dimensions of EO (innovation, risk-taking, and proactiveness) in South Africa's public sector.

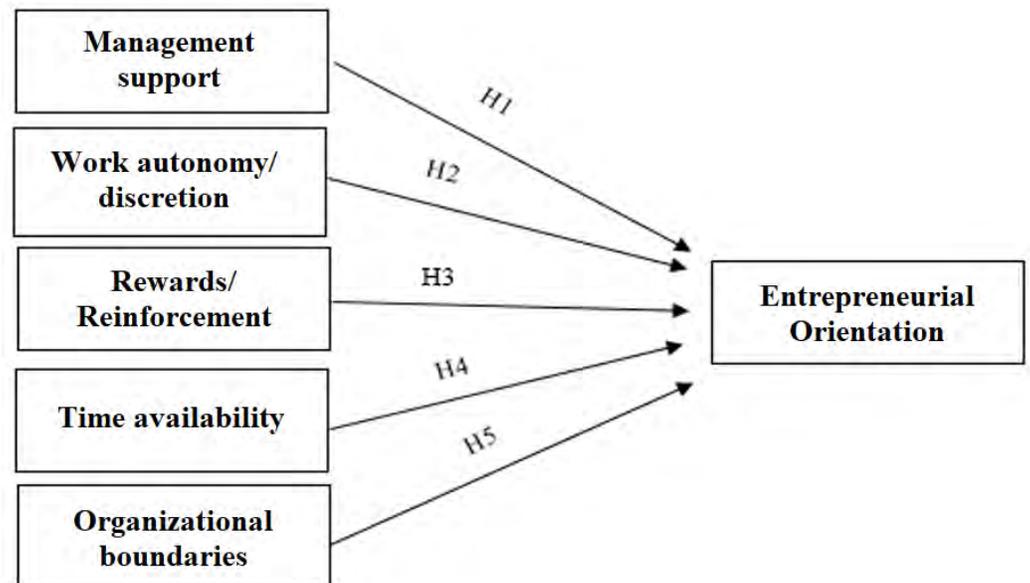
Accordingly, for the purposes of this study, the research instrument developed by Hornsby et al. (2002) and refined by Meynhardt and Diefenbach (2012) was used to evaluate the following organizational aspects: perceptions of management support, work discretion, rewards/reinforcement, time availability, and organizational boundaries. Moreover, they also included goal ambiguity, expectations, and managers' localism in the tool, concluding that a multitude of expectations, managers' localism, and current position/function are the variables with the greatest impact on EO in the work unit.

The management support variable refers to support from top management for innovative ideas and includes financial and nonfinancial support. The second variable, work discretion/autonomy, is related to tolerance for error as well as freedom in decision-making, given that organizations with greater autonomy tend to be more innovative (Hornsby, Kuratko, Holt, & Wales, 2013). Rewards and reinforcement can be financial and nonfinancial, such as bonuses and promotions. The time availability variable is essential for creating something new; excessive workloads or deviations from duties provide little time for entrepreneurship. The final variable is organizational boundaries, which concern communication and interactions between the organization and the external environment as well as between departments and organizational divisions (Hornsby, Holt, & Kuratko, 2008; Hornsby et al., 2002).

From this literature review, the construct illustrated in Figure 1 was developed, involving the five hypotheses (H) of this study, based primarily on Meynhardt and Diefenbach (2012).

In this approach, the central argument of this study is developed as follows. Organizational characteristics influence people's behavior at work, with the objective of conditioning them to achieve the organization's goals under EO (Meynhardt & Diefenbach, 2012), following the principles of public administration in Brazil (Emmendoerfer, 2019). As such, considering that management support, autonomy/discretion, rewards/reinforcement, adequate time availability/workload, and flexible organizational boundaries are present in organizations, these characteristics are expected to exert a positive influence, generating better conditions for exercising EO to deal with the demands of work in the public sector (Lacerda & Andrade, 2021; Neessen, Caniëls, Vos, & Jong, 2019).

Understanding the real effect of these organizational characteristics as conditioning factors will thus enable a more thorough exploration of these elements, both by scholars constructing models, based on scientific research with an empirical approach, and by education professionals, educational managers, public policy analysts, and public administrators. These will be able to guide their actions in an entrepreneurial way, based on the findings



**Figure 1** Construct of organizational characteristics that influence EO in the public sector. Source: prepared by the authors

and the pursuit of better theories (Sabatier, 2017) to address public problems, which in this study are those related to the management of early childhood education, specifically, from the perception of professionals who work in public educational centers.

### 3 METHODS

This study starts from the assumption that opportunities are present in the environment, ready to be discovered by the “alert entrepreneur,” and is thus onto(epistemo)logically in line with critical realism, enabling the use of both quantitative and qualitative techniques, which together facilitate a broader understanding of the phenomenon, which in this study is public intrapreneurship in early childhood education in a municipality in the interior of Minas Gerais, Brazil.

The selection of the municipality (town) was based on accessibility and convenience, as it was included in the Entrepreneurial Actions Project, funded by the Minas Gerais Research Foundation (Fundação de Amparo à Pesquisa de Minas Gerais - FAPEMIG) and the National Council for Scientific and Technological Development (Conselho Nacional de Desenvolvimento Científico e Tecnológico - CNPq), which seeks to map the strategies used by public managers to achieve the National Education Plan (2014-2024).

The municipality’s educational system includes 15 CEMEIs and 16 municipal schools for preschool and primary education I and II. Three of the schools that provide early childhood and primary education are located in the municipality’s rural zone. The CEMEIs are responsible for daycare centers—the first part of early childhood education—with the following modalities: Nursery (6 months to 1 year), Daycare I (1 to 2 years), Daycare II (2 to

3 years), Daycare III (3 to 4 years).

### 3.1 Data Collection Procedures

The target participants of this research were public servants and employees of all the CEMEIs in the municipality, with the following positions/functions: coordinator, pedagogical supervisor, pedagogical assistant, teachers, and monitors. To define the sample size, the criterion of Hair et al. (2022) was used: the sample size should be ten times the number of paths in the model. Based on this criterion, the sample should have at least 50 respondents, and thus, the sample was adequate, given that it included 134 respondents. Nonprobability convenience sampling was used, as many public servants in the target audience did not have time available to participate in the study.

This paper followed the ethical principles for research in the humanities and social sciences, following the guidelines of the National Health Council, resolution no. 510, since April 7, 2016. The data were collected using a questionnaire that was administered between November and December 2019. It was structured based on the literature (Meynhardt & Diefenbach, 2012) and existing questionnaires (Hornsby et al., 2008, 2002). It was adapted to this study object and it was structured into two blocks of questions.

First, although this was not intentional, the block of demographic questions revealed that all of the study participants (education professionals) were women: six pedagogical supervisors, 13 coordinators, 92 monitors, and 21 teachers. Most of the participants had a college degree and a monthly household income of up to R\$ 3,000.00, and 65.7% were between 36 and 55 years old; 76.9% had no job stability, as they had temporary employment contracts. This may reflect the public service entrance exam for education in the municipal network, which was held in 2012, leading to many contracts for CEMEIs. The data in this block were processed using descriptive statistics with Statistical Product and Service Solutions (IBM SPSS Statistics 25) software, a free trial version.

The second block contained questions related to organizational characteristics and EO, as described in Table 1. It was structured based on the literature and existing questionnaires (Hornsby et al., 2008, 2002). This block used a Likert-type scale that differs from traditional Likert scales in that the items were not summed (Antoniali, Antoniali, & Antoniali, 2010). The Likert-type scale is thus classified as an ordinal scale (nonmetric), and the following statistical analyses can be used: median, frequency distribution, Spearman or Kendall correlation, Mann–Whitney test, and multivariate statistics. For each statement, the respondents could assign a value ranging from one to five (1-Strongly disagree; 2-Disagree; 3-Neither agree or disagree; 4-Agree; and 5-Strongly agree). According to Hair et al. (2010), it is appropriate to differentiate between exogenous (dependent) and endogenous (independent) variables. In this study, as shown in Figure 1 and described in Table 1, the exogenous variables (management support, work discretion/autonomy, rewards/reinforcement, time availability, and organizational boundaries) were used to explain the endogenous variable (EO).

It was thus possible to identify and analyze variables such as management support (MS9 to MS15), work autonomy (AU16 to AU20), rewards/reinforcement (REW21 to

**Table 1** Description of the variables

Variables	Coding	Description	
Entrepreneurial orientation	EO33	The organization (secretariat, school/CEMEI) is open to innovation.	
	EO34	The organization (secretariat, school/CEMEI) implements creative projects or programs.	
	EO35	The organization (secretariat, school/CEMEI) approaches the external community to initiate projects.	
	EO36	The organization (secretariat, school/CEMEI) implements promising but risky projects.	
	EO37	The organization (secretariat, school/CEMEI) often gets involved in projects even if the outcome is initially uncertain.	
	EO38	The organization (secretariat, school/CEMEI) is extremely careful about the actions that will be implemented.	
	EO39	The organization (secretariat, school/CEMEI) frequently engages in particularly promising projects/programs/innovations.	
	Management support	MS9	The organization is receptive to new ideas and suggestions.
		MS10	Financial or nonfinancial resources are made available for new ideas and suggestions.
MS11		Can people with new/creative ideas make decisions without having to justify them?	
MS12		Experimental projects are supported, even if they run the risk of failure.	
MS13		Individual risks are recognized.	
MS14		An employee with a good idea is usually given time to develop it.	
MS15		Conversations with other employees are encouraged to develop ideas for new projects.	
Work autonomy	AU16	This organization gives me the chance to be creative and experiment with my own methods for doing my work.	
	AU17	I have the freedom to decide what I do in my work.	
	AU18	It is basically my responsibility to decide how my work is done.	
	AU19	I can almost always decide what I do in my work.	
	AU20	I have the freedom to change the way I perform my activities.	
Rewards/Reinforcement	REW21	I receive additional rewards for my ideas and efforts, beyond the standard reward system.	
	REW22	The rewards I receive depend on the development of new and creative ideas.	
	REW23	I receive special recognition when I perform well at work (for example: an award).	
Time availability	TIM24	In the last three months, my workload has prevented me from spending time developing new ideas and projects.	
	TIM25	I have the necessary time and an adequate workload to be able to do my work well and develop innovative projects.	
	TIM26	I feel like I am always working under time constraints.	
	TIM27	I have little time to think about broad organizational problems, such as low student grades, a low Index of Basic Education Quality (Índice de Desenvolvimento da Educação Básica - IDEB), and others.	
	TIM28	My colleagues and I always find time to solve long-term problems.	
Organizational boundaries	OB29	In my work, I have clear goals and objectives for my position, with defined expectations of me in terms of quantity, quality, deadlines, and results.	
	OB30	There are many written rules and procedures for performing my main tasks.	
	OB31	I am unsure what is expected of my work.	
	OB32	My performance is questioned by my superiors.	

Prepared by the authors.

REW23), time availability (TIM24 to TIM28), organizational boundaries (OB29 to OB32), and entrepreneurial orientation (EO33 to EO39). However, although these variables have already been applied in the public sector (Meynhardt & Diefenbach, 2012), in particular, internationally, they were adapted to the Brazilian context and to the municipal educational context, as these constructs were developed based on the European context.

### 3.2 Measurement Model for Data Analysis

To ensure the reliability and validity of the structural equation model, it is necessary to perform a few tests. Accordingly, Smart PLS software, version 3.3.5, was utilized to analyze the partial least squares structural equation model (SEM/PLS) using multivariate techniques (Bido & Silva, 2019) to construct the model based on the 134 valid responses.

It was thus possible to verify convergent validity, which is the convergence of items within a construct that share a high proportion of variance in common (Hair et al., 2022). Measures of convergent validity include reliability (Cronbach's alpha, Rho\_A and composite reliability), external loadings, and average variance extracted (AVE). First, the model's reliability was checked. It was found that the latent variables "Time availability" and "Organizational boundaries" did not present satisfactory Cronbach's alpha (below 0.6), composite reliability (below 0.7), or rho\_A (below 0.7) values.

The TIM24, TIM26, TIM27 variables from the "Time availability" construct were retained, but the OB31 and OB32 variables were removed from the analyses. Thus, the "Organizational boundaries" and "Time availability" constructs contained only two indicators. Based on the three-indicator rule, it is necessary for a construct to have at least three indicators identified in the measurement model as being similar Hair et al. (2010). As such, the latent variables "Organizational boundaries" and "Time availability" were excluded from this study. Additionally, the MS10 and MS11 variables were removed from the management support construct, and the EO36 and EO37 variables were removed because they presented external loadings lower than 0.6; however, these constructs remained in the model because they had acceptable Cronbach's alpha, Rho\_A, and composite reliability values. Thus, after making adjustments to address the inadequate internal consistency and reliability values, the model was processed again.

Table 2 presents the internal consistency values of the model's latent variables before (initial) and after (final) adjustments. The EO and management support variables had the most alterations, as the indicators changed and were retained in the model.

Table 3 presents the external loadings after the adjustments to the measurement model. All the loadings had satisfactory values, above 0.7, demonstrating the internal consistency of the indicators.

AVE is an indicator that summarizes the convergence of a set of items within a construct (Hair et al., 2010). All the latent variables had values higher than the minimum acceptable value for AVE (0.50) and, consequently, had convergent validity. There were thus satisfactory results for reliability and convergent validity.

Discriminant validity is the degree to which a construct is truly different from others (Hair et al., 2010). Accordingly, high discriminant validity means that the construct

**Table 2** Cronbach's alpha, rho\_A and composite reliability after adjustments

	Cronbach's Alpha		Rho_A		Composite Reability	
	Initial	Final	Initial	Final	Initial	Final
<b>AU</b>	0.824	0.824	0.848	0.847	0.874	0.874
<b>EO</b>	0.825	0.836	0.877	0.922	0.866	0.880
<b>REW</b>	0.856	0.856	0.919	0.955	0.910	0.909
<b>MS</b>	0.820	0.826	0.862	0.848	0.863	0.873
<b>TIM</b>	0.168	-	0.161	-	0.171	-
<b>OB</b>	0.381	-	0.316	-	0.190	-

Source: prepared by the authors.

**Table 3** External loadings of exogenous and endogenous variables after adjustments

	AUT	EO	REW	MS
AU16	0.827			
AU17	0.773			
AU18	0.706			
AU19	0.792			
AU20	0.708			
EO33		0.888		
EO34		0.729		
EO35		0.726		
EO38		0.798		
EO39		0.709		
REW21			0.808	
REW22			0.911	
REW23			0.907	
MS9				0.731
MS12				0.725
MS13				0.805
MS14				0.742
MS15				0.796

Source: prepared by the authors.

is unique and captures a phenomenon that other measures cannot. The Fornell and Larcker criterion was used; this criterion establishes a comparison of the square root of the AVE values with the correlations of the latent variables, whereby the square root of the AVE must be higher than any other construct (Fornell & Larcker, 1981). In Table 4, the bold numbers indicate higher values than the other numbers in the same block, showing that the square root of the AVE is higher than that for the other variables.

Lastly, collinearity was analyzed using the Variance Inflation Factor (VIF), which indicates the effect that other independent variables have on the standard error of the regression coefficient. Hair et al. (2010) recommend a VIF of less than five for all indicators. No latent variable presented an indicator with high collinearity. It can thus be concluded that the tests for internal consistency, convergent validity, discriminant validity, and VIF are in

**Table 4** Fornell-Larcker discriminant validity criterion

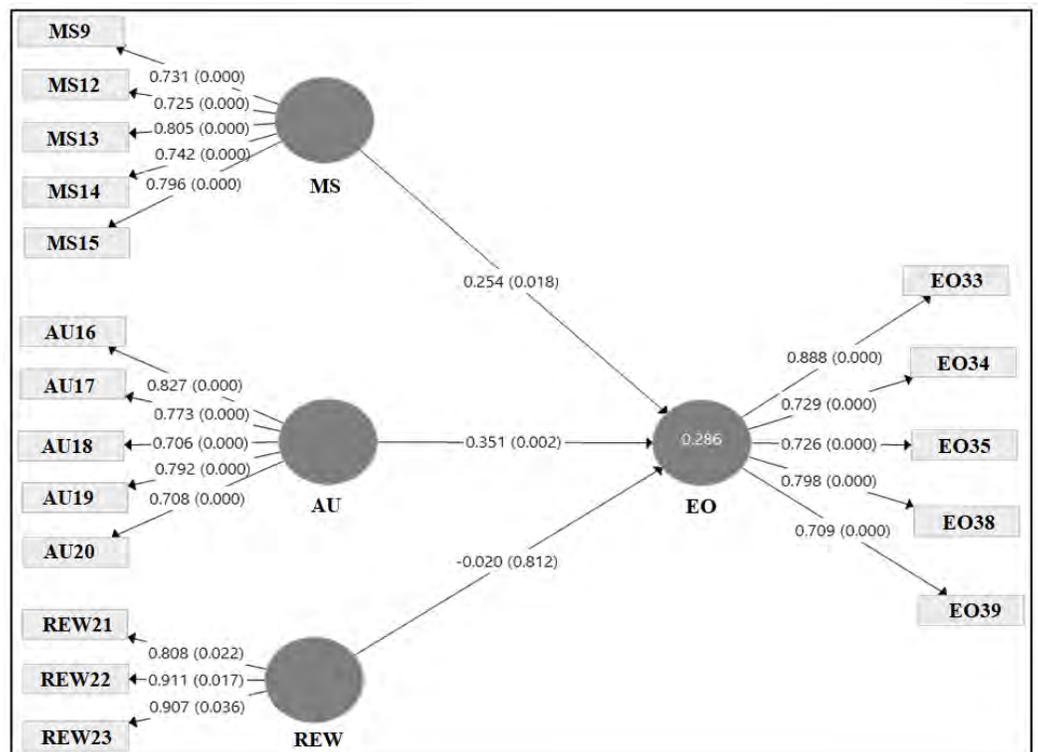
	AU	EO	REW	MS
<b>Autonomy</b>	<b>0.762</b>			
<b>Entrepreneurial Orientation</b>	0.494	<b>0.773</b>		
<b>Rewards / Reinforcement</b>	0.265	0.126	<b>0.877</b>	
<b>Management support</b>	0.586	0.455	0.212	<b>0.761</b>

Source: Prepared by the authors based on the research data.

accordance with the criteria established for the analysis of the structural model.

### 3.3 Scientific Rigor and Quality: Evaluation of the Structural Model

This study used a resampling technique that validates a multivariate model by extracting a large number of subsamples, estimating models for each of them and determining the values for the parameter estimates from the set of models Hair et al. (2010). Figure 2 shows the weights of each path ( $\beta$ ) and the p-value for the relationships in the structural model produced. In this model, corroborating Hair et al. (2010), there are dependent (influence of one variable over another) and correlation (causality relationship) relationships.



**Figure 2** Research model path diagram. Note. Values outside the parentheses are the external loadings, and values within the parentheses are p values. Source: Prepared by the authors in SmartPLS software using the study data.

First, the  $R^2$  was checked to measure the model fit quality, which should vary between 0 and 1; the higher is the value, the better the explanation of the endogenous variable by the exogenous variable. According to Cohen (2013),  $R^2 = 2\% = \text{small}$ ;  $R^2 = 13\% = \text{medium}$ ; and  $R^2 = 26\% = \text{large}$ . In this study, the  $R^2$  of the model was 0.27, demonstrating that the constructs explain approximately 27% of the variance explained.

Next, Table 5 was prepared for hypothesis testing, with the path coefficients ( $\beta$ ), p values, and the results of the test for each hypothesis formulated for the proposed model. The p-value represents the probability of rejecting a hypothesis (Bido & Silva, 2019). According to Hair et al. (2010), a maximum limit of 5% should be used as a parameter to indicate statistical significance. Only the rewards construct had p values above this threshold (0.818), while management support and autonomy obtained adequate p values, i.e., 0.018 and 0.002, respectively.

**Table 5** p-value, path coefficient ( $\beta$ ), and hypothesis testing results

Hypotheses	p	$\beta$	$f^2$	Results
H1	0.018	0.254	0.059	Confirmed
H2	0.002	0.351	0.110	Confirmed
H3	0.812	-0.020	0.001	Not confirmed
H4	-	-	-	Not evaluated
H5	-	-	-	Not evaluated

Source: Prepared by the authors in SmartPLS software using the study data.

When observing the path coefficient ( $\beta$ ) of the dependent variables with the independent variable, the weight of management support was 0.254, the weight of autonomy was 0.351, and the weight of rewards was -0.020. Accordingly, the construct that had the greatest weight in terms of EO was autonomy, followed by management support; rewards had no influence because the result was negative.

Next, the effect size ( $f^2$ ) was analyzed; effect size indicates how much each variable contributes to the predictive power of the structural model (Hair et al., 2010), with  $f^2 = 0.02 = \text{small}$ ;  $f^2 = 0.15 = \text{medium}$ ; and  $f^2 = 0.35 = \text{large}$  (Cohen, 2013). In this regard, the “Rewards/reinforcement” construct did not affect the analysis, while “Management Support” and “Autonomy” exerted little influence on the structural model. Accordingly, only two of the five hypotheses were confirmed ( $p < 0.05$ ), and the effect size ( $f^2$ ) was small in both relationships, even though the variance explained was large (adjusted  $R^2 = 27\%$ ).

#### 4 ANALYSIS OF THE MODEL: HIGHLIGHTS

As seen in Table 5, hypotheses H1 and H2 were confirmed. It was not possible to confirm H3, and hypotheses H4 and H5 were not evaluated due to a lack of reliable data. As such, the respondents’ perceptions about the factors that affect EO will be addressed, namely, management support and autonomy. Furthermore, recognition/reinforcement will

be addressed, as the construct was considered to have a high external loading, higher than 0.8.

## 5 MANAGEMENT SUPPORT POSITIVELY INFLUENCES ORGANIZATIONS' EO

Management support refers to the support and encouragement of entrepreneurial behavior by an organization's leaders and can occur through the adoption of innovative ideas, the recognition of employees, financial and nonfinancial support for new ideas, and the implementation of entrepreneurial activities in an organization (Hornsby et al., 2002). According to Meynhardt and Diefenbach (2012), in both the public and private sectors, the support of managers encourages innovative, proactive, and risk-taking behavior.

In this construct, adjustments were made by eliminating the MS10 and MS11 variables from the "Management support" construct, as they presented external loadings of 0.544 and 0.482, lower than the limit established in exploratory studies (0.6) (Hair et al., 2010). Among the hypotheses, H1 was confirmed with a significance level of 0.018, with an accepted significance level of  $p < 0.5$ . The result thus indicates that management support is a factor that influences EO in these organizations. However, adjustments are needed, as many respondents were neutral on statements MS12, MS13, and MS14, which are part of the management support construct. This neutrality may have been impacted by their position, as most are contractors, and suggests a lack of confidence related to expressing an opinion about the statements.

As expected, management support positively and significantly impacts EO, a finding that was also indicated by Meynhardt and Diefenbach (2012). In a study by Hornsby et al. (2013), this construct was the most strongly correlated with EO, contrary to the results of this study, as autonomy was the construct that presented the highest correlation. The support of top management, whenever possible, is crucial to the development and implementation of entrepreneurial practices in organizations. It is thus essential for managers to constantly encourage and develop measures to maintain a favorable entrepreneurial culture that is internalized by all employees of a public organization (Urban & Nkhumishe, 2019).

### 5.1 Work Autonomy/Discretion Positively Influences an Organization's EO

Work autonomy/discretion refers to the ability of top managers to tolerate failure, provide decision-making freedom, and delegate authority and responsibilities to managers and lower-level workers (Hornsby et al., 2013). Among the hypotheses tested, H2 was confirmed with the highest significance level,  $p < 0.1$ , and with the highest influence, 0.351. The results indicate that work discretion/autonomy are the constructs that have the most influence on EO. For statement AU16, 71.7% agreed they are offered the chance to be creative and experiment with their own methods for doing their work. For statement AU17, 50.8% reported that they have the freedom to decide how to do their work. For statement AU18, 47.8% agreed that it is their responsibility to decide how their work will be done. For statement

AU19, 56% of the respondents stated that they are almost always able to decide how to do their work. Finally, for statement AU20, 61.1% of respondents indicated that they have the freedom to change how they perform their activities.

It is inferred that the work discretion/autonomy construct influences EO in CEMEIs. Autonomy is the entrepreneurial independence to bring a new idea to completion, without the interference of bureaucracy (Emmendoerfer, 2019). For Coura et al. (2018, p. 2547), autonomy is the freedom given to individuals to make decisions without organizational restrictions, characterized by the “independence of the team to deliberate, offer new ideas or visions for unprecedented opportunities, without a member of top management approving or analyzing the measure beforehand.” Organizational autonomy is thus related to the level of centralization or delegation and the organization’s size.

## 6 DISCUSSION AND IMPLICATIONS

The EO construct is a validated and reliable measure in the private sector, but there is no equivalent measure in the public sector (Meynhardt & Diefenbach, 2012). As such, this study adapted the dimensions of innovation, proactiveness, and risk-taking to form an EO construct for public early childhood education. However, the EO36 and EO37 variables presented inadequate loadings—0.443 and 0.555, respectively—and were thus excluded. The indicators of this construct presented adequate reliability coefficients for the structural equation model and were retained based on the standards established by Hair et al. (2010).

With regard to the path coefficient ( $\beta$ ), the construct that had the greatest weight in terms of EO was autonomy, with a weight of 0.351, followed by management support, with 0.254. This finding is relevant, as autonomy is considered a dimension of EO and its scope is broadened with management support; this result contributes to understanding the causes and consequences of being an entrepreneur (Anderson, Kreiser, Kuratko, Hornsby, & Eshima, 2015) in public early childhood education.

As consequences or implications for a future agenda of studies in the field, it is possible to infer that these variables are conditioned by the fact that labor relations in CEMEIs are characterized by temporary contracts; based on the sociodemographic data herein, more than 75% of this study’s participants are employed through temporary contracts. This requires proactive entrepreneurial behavior from those who manage and conduct core activities related to early childhood education to ensure that contracts are renewed and that individuals can continue their work. This may reveal an ambiguity of entrepreneurship in the public sector in the organization studied in the Brazilian context. However, EO - primarily through management support and autonomy - indicates signs of proactive educational management to address problems and contingencies. It may also indicate signs of coping and surviving under the increasing precarity (Correa, 2021) of labor relations in the Brazilian public sector.

The results of the study by Urban and Urban and Nkhumishe (2019), who evaluated three organizational antecedents (culture, structure, and rewards) and each of the EO dimensions (innovation, risk-taking, and proactiveness) in the South African public sector, indicated

that the organizational antecedents of structure and culture explain a significant amount of variance in the EO dimensions. In this study, rewards as an organizational antecedent had no significant influence on the EO dimensions; thus, hypothesis H3 was not confirmed, obtaining a p-value of 0.812 and a negative and unsatisfactory path weight (-0.020), as seen in Table 5.

In the public sector, psychological, nonmonetary rewards are more desired by public servants, unlike in the private sector, where stimulus programs, incentives, and rewards have a positive impact on entrepreneurship (Lapolli & Gomes, 2017). According to Urban and Urban and Nkhumishe (2019), individuals who perform well in the public sector are rarely rewarded, and those who perform poorly are rarely punished. However, Emmendoerfer (2019) emphasizes that it is possible to address this status quo in the public sector by stimulating an entrepreneurial culture through visibility and collaborative experiences, coupled with an EO that is guided by the principles of good public administration.

Understanding EO in the context of the public sector is important not only for academic purposes but also for public sector managers and policymakers (Urban & Nkhumishe, 2019). Understanding the variables analyzed - in particular, management support and autonomy - can influence effectiveness and efficiency in the provision of public services in daycare centers as well as encourage innovation and new ways of doing things in this organization for educational management purposes.

## 7 CONCLUSIONS

The need to study EO from the perception of the public early childhood education professionals has become essential for confronting the challenges and demands of public administration to create public value in educational centers. As emphasized in this study, organizational characteristics are a way to develop EO in education professionals. In summary, hypotheses H1 (management support) and H2 (work discretion/autonomy) were confirmed; H3 (rewards/recognition) could not be confirmed; and hypotheses H4 (time availability) and H5 (organizational boundaries) were not evaluated due to a lack of reliable data. Thus, management support and work discretion/autonomy positively impact EO.

This study contributes in three ways. First, it contributes to the field of EO in the public sector by describing the antecedents of EO that will influence the entrepreneurial behavior of public servants. This study, therefore, demonstrated that management support and autonomy can encourage the practice of EO by public managers, servants, and employees. The second is the use of a structural equation model, as no similar studies were found either nationally or internationally. The third contribution is related to daycare centers, as there is a lack of research on the management of these public organizations and a need to improve them, given the importance of this stage of basic education.

Furthermore, EO is a way to address the different problems that daycare centers face daily, such as a lack of professional training and appreciation, a lack of investment in pedagogical materials and infrastructure, and a lack of monitoring and evaluation mechanisms for the services offered by daycare centers. Consequently, on the one hand, the develop-

ment of an innovative environment may be a way to overcome these difficulties and ensure that daycare services are recognized as having public value in the communities in which they are located. On the other hand, it sheds light on a relevant and promising research agenda on new contemporary studies in the Humanities fields, including critical ones, discussing appropriations, resignifications, scope, effects, and impacts of the manifestations of the Public Sector Entrepreneurship (PSE).

A limitation of this study is the scope of the research, making it impossible to generalize the findings to other municipalities or all public educational institutions since the conclusions are related to the perception of studied professionals and not directly to the teaching of early childhood education focused on entrepreneurship. Future studies should refine the questionnaire to identify other factors influencing EO in public institutions and expand the discussion presented here to encourage high-quality, effective educational management.

## 8 AUTHORS' CONTRIBUTIONS

**Vieira, L. S.:** Contextualization; Data curation; Formal analysis; Investigation; Methodology; Project administration; Resources; Software; Supervision; Validation; Visualization; Writing. **Meirelles, D. A.:** Contextualization; Formal analysis; Funding acquisition; Investigation; Methodology; Resources; Software; Supervision; Validation; Visualization; Writing. **Emmendoerfer, M.:** Contextualization; Formal analysis; Investigation; Methodology; Resources; Validation; Visualization; Writing.

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