

The Impact of High Levels of Role Ambiguity on the Intellectual Engagement of Public Employees: A Curvilinear Relationship*

Impacto de altos niveles de ambigüedad del rol en el compromiso intelectual de empleados públicos: Una relación curvilínea

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ABSTRACT

Universities are higher education institutions where knowledge is discussed and disseminated, serving as a key element in the future of society. However, their employees face high levels of role ambiguity, especially after COVID-19. Studies suggest this ambiguity reduces intellectual engagement, the relationship between these variables may not be linear, but curvilinear. This study examines how perceived role ambiguity affects intellectual engagement among 122 technical employees at a public university. The results confirm the existence of a curvilinear asymmetric U-shaped influence. Higher ambiguity initially reduces intellectual engagement, but becomes a challenge at medium levels, boosting it. These results highlight ambiguity's dual nature in public administration, showing it can evolve from a negative stressor to a motivational factor driving intellectual engagement.

Keywords

role ambiguity; intellectual engagement; public administration; technical staff for management; administration and services; hindrance demands; challenge demands.

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RESUMEN

Las universidades son instituciones de educación superior donde se discute y difunde el conocimiento, y desempeñan un papel clave en el futuro de la sociedad. Sin embargo, sus empleados enfrentan altos niveles de ambigüedad de rol, especialmente después del COVID-19. Los estudios sugieren que esta ambigüedad reduce el compromiso intelectual, aunque la relación entre estas variables podría no ser lineal, sino curvilínea. Este estudio examina cómo la ambigüedad de rol percibida afecta el compromiso intelectual en 122 empleados técnicos de una universidad pública. Los resultados confirman la existencia de una influencia curvilínea en forma de U asimétrica. Una mayor ambigüedad reduce inicialmente el compromiso intelectual, pero a niveles medios

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se convierte en un desafío que lo impulsa. Estos resultados destacan la naturaleza dual de la ambigüedad en la administración pública, mostrando que puede evolucionar de un factor estresante negativo a un elemento motivacional que fomenta el compromiso intelectual.

Palabras clave

ambigüedad de rol; compromiso intelectual; administración pública; personal técnico de gestión; administración y servicios; demandas obstaculizadoras; demandas desafiantes.

The term University has its origin in the Latin *Universitas*, or *Universitas Magistrorum et Scholarium*, translated as “community of professors and academics” (Loyola-Illescas & Tristán-Pérez, 2017). Universities are higher education institutions where knowledge is discussed and disseminated; and they play a vital role in economic and social life, since they are responsible for training the professionals of the future and largely generating the advancement of cutting-edge scientific knowledge (Compagnucci & Spigarelli, 2020; Szücs, 2018; Zeng et al., 2023).

Employees who work in universities have traditionally been subjected to multiple pressures from different areas of society. Governments expect a university model at the service of citizens, and on the other hand, markets demand from these institutions, innovation and technology at the service of production, i.e., a university of results (Carlotto & Câmara, 2017; Lv et al., 2022; Xu et al., 2023). This pressure was accentuated with the changes derived from the socio-health crisis experienced due to COVID-19 (Al Lily et al., 2020; Sahu, 2020), but most studies have focused their attention on its effects on the student and teacher groups, not exploring its consequences on the administration and service staff of these institutions (Odrizola-González, 2020).

The university's response to the pandemic and periods of confinement was the widespread implementation of Information and Communication Technologies (ICT) in all its procedures. This not only affected teaching, but also influenced management processes and social interaction between different members of the university community (Castañeda et al., 2023;

Heiden et al., 2021; Krassadaki et al., 2022). This transformation increased the uncertainty in their employees faced with changes in the ways of carrying out work suddenly (Araújo et al., 2020; García-González et al., 2020; Silva et al., 2020), increasing the levels of role ambiguity they perceived (Navarro & Más, 2010; Durodié, 2020; Zhang et al., 2020).

When role ambiguity appears in an organization, one of the organizational factors that is most affected is the emotional attachment or engagement of employees (Mañas et al., 2018), especially about intellectual engagement (Pasquarella et al., 2022). Previous studies have shown that the emotional response to a stressor such as ambiguity can take different forms. On the one hand, it can entail a reduction in engagement with work, generating a hindrance and fostering employee apathy (Lee et al., 2017; Panari et al., 2019). But at other times, the absence of clarity can cause employees to interpret it as a challenge and increase their intention to provide new solutions based on their knowledge or experience (McMahan & Evans, 2018). Recent studies have proposed a third way where both influences can occur at the same time in the same work context, a curvilinear relationship appearing between these variables depending on the degree to which the stressor is perceived by the employee (Antwi et al., 2019; Martín-Martín et al., 2022).

This paper attempts to delve into the effect that role ambiguity has on the intellectual engagement of the technical staff of management, administration and services of a Spanish public university. To do this, it analyzes the entire range of ambiguity responses and their influence on intellectual engagement, which will show whether role ambiguity can be perceived as a challenge in certain values, leading to positive consequences for the intellectual engagement of employees.

Theoretical framework

Stressors linked to the work context are considered by the International Labor

Organization (ILO, 2016) and the World Health Organization (WHO, 2020) as a new epidemic. A study by the European Agency for Safety and Health at Work states that 25 % of workers experience stress related to the development of their duties during all or almost all their working time, and a similar percentage states that work has a negative effect on their health (Eurofound & European Agency for Safety and Health at Work, 2014).

Considering the important economic consequences and the negative effect of stressors on the physical and emotional health of employees, different authors have proposed this construct as one of the main study focuses of Work and Organizational Psychology (García, 2020; Wang et al., 2020). The context of public universities is no stranger to this reality. Different authors have observed that stress is one of the most frequent problems in universities, negatively affecting the different groups that work there (Díaz-Corchuelo, 2015; Elema et al., 2021; Han et al., 2020; Lee et al., 2022; Mark & Smith 2018; Puertas-Molero et al., 2018; Stang-Rabrig et al., 2022; Williams et al., 2017; Xu et al., 2023)

Employees of higher education institutions have suffered important changes that increase their sources of stress (Martínez-Díaz et al., 2021; Urbina-García, 2020). The global emergence of the socio-health crisis associated with COVID-19 meant a radical change in the context of universities. These centers responded to the pandemic by promoting the use of ICT in administration and management procedures, as well as teleworking to minimize social contacts. This has led to the implementation of new ways of developing job functions, causing a reduction in the employee's levels of autonomy and an increase in their role ambiguity (Hegney et al., 2021; Kinman & Johnson, 2019; Kinman, 2014; Kuvaas & Buch, 2020).

On many occasions, when the effects of the pandemic in public universities have been studied, attention has been focused mainly on the groups of students and teaching and research staff (Husky et al., 2020; Odriozola-González, 2020), without paying attention to the effects of these

changes on the technical staff of management, administration and services. These professionals are in charge of the technical, economic and administrative management of the University, as well as support, advice and assistance in the development of the functions of the rest of the members of the institution (Organic Law 6/2001, of December 21st, of universities). Therefore, it is essential to know the effect of these changes on these key professionals when optimizing the results of the services provided in these educational organizations (Poalses & Bezuidenhout, 2018).

Role ambiguity describes situations where the employee perceives a lack of clear information about their functions (Rizzo et al., 1970; Schmidt et al., 2014). The concept of role ambiguity has gone through different stages and controversies in its definition (De Clercq, 2019). It is currently accepted that role ambiguity is the dimension of role stress that refers to the uncertainty experienced by employees, about the key requirements of their job and how they are expected to behave (Keshavarz & Mohammadi, 2011; Martínez-Díaz et al., 2020). Employees in situations of role ambiguity will feel hindered by considering that there are significant information deficiencies, so they will adopt non-creative behaviors, establishing routine behavior patterns as a stress coping mechanism (Maden-Eyiusta, 2019). Therefore, most research associates this variable with negative outcomes such as emotional exhaustion (Singh et al., 2012), depression (Schmidt et al., 2014) or reduced work performance (Zhou et al., 2016). However, at certain levels of perceived ambiguity, these same workers could significantly increase their effort and creativity in search of reversing that situation for their own benefit (De Clercq, 2019). Already Kahn et al. (1964) in an influential study stated that situations of ambiguity can challenge employees and increase their ability to meet performance requirements, although it is still unclear how this change occurs in employees' emotional reaction to ambiguity occurs.

A large group of studies focus their attention on role ambiguity within higher education

institutions, as one of the main stress factors in groups linked to these institutions (Cladellas-Pros et al., 2018; Nava & Zavala, 2017; Yousefi & Abdullah, 2019). These studies associate ambiguity to low levels of satisfaction, motivation, and productivity, as well as higher staff turnover (Gormley, 2005; Surdez et al., 2017). However, these investigations have been developed on samples of students, teachers and research staff (Malone, 2002; Schulz, 2013; Surdez et al., 2017), not addressing the study of the group of management, administration, and services technical staff.

One of the theories that makes it possible to deepen the study of the influence that role ambiguity presents on employee response is the theory of Job Demands and Resources (JD-R) (Bakker & Demerouti, 2017). In the pioneering studies on this theory, job demands are perceived as those circumstances that interfere with or inhibit a person's ability to achieve their goals (Cavanaugh et al., 2000; Demerouti & Bakker, 2011). The negative influence of these, maintained over time, can cause health deterioration and weaken employee engagement, thus making it difficult for organizations to achieve their objectives and reducing employee well-being (Bakker & Demerouti 2013). However, recent studies (De Clercq, 2019; McMahan & Evans, 2018) are betting on the fact that job demands need not carry only a negative connotation. Bakker and Demerouti (2017), the precursors of this theory, after a recent review, present the demands from a double perspective, dividing them into hindering demands and challenging demands.

Recently, the multiplicative impact of job demands and job resources on employee well-being has been pointed out in the JD-R Theory. One of the propositions of this theory indicates that job demands can amplify the impact of job resources on work engagement, so that, in environments with high or challenging job demands, job resources become more importance on work engagement, buffering the negative effect of job demands. Specifically, employees who experience work engagement are intrinsically motivated to stay engaged, which

leads them to proactively optimize their jobs. Over time, this proactive behavior generates personal and work resources to cope with job demands, which in turn promotes work engagement (Bakker et al., 2023).

When analyzing the effect of demands on the employee, the element to which most attention is directed is engagement. The importance of studying this construct lies in its sensitivity to stressors at work (Curran & Prottas, 2017). In this negative influence, the dimension of engagement that has shown the greatest sensitivity to role ambiguity is intellectual engagement (Abu-Hamour, 2018). This variable has increased its relevance in scientific publications in recent decades, especially due to its link to the achievement of competitive advantages and success (Crawford et al., 2010; Harter et al., 2002; Saks & Gruman, 2014). The first conceptualization of intellectual engagement is that proposed by Soane et al. (2012). According to these authors, engagement is operationalized based on the satisfaction of employees' needs. In this approach, the authors differentiate between three relevant aspects to study within engagement: intellectual dimension, social dimension, and affective dimension. Thus, intellectual engagement can be considered as the level of mental absorption in the work and the worker's willingness to contribute their abilities to improve it. More recently, authors such as Khalid et al. (2015) define intellectual engagement as the effort made by employees to contribute their knowledge and intellectual capacity to better perform work tasks.

An explanation for the sensitivity of intellectual engagement towards the increase in role ambiguity is found in the Conservation of Resources theory (Hobfoll, 1989). From this approach it can be predicted that high levels of ambiguity associated with job functions will begin to affect mainly intellectual engagement. In this way, public employees would show an initial pattern of disengagement of their intellectual contribution in response to job ambiguity, directing their effort to minimize the net loss of resources. In line with this idea, the first hypothesis of this paper states that:

Hypothesis 1: Workers subjected to work contexts with increasing levels of role ambiguity initially show a reduction in their level of intellectual engagement with the organization.

Despite the primacy of works that have addressed the study of role ambiguity as an hindrance (De Clercq, 2019), recent studies linked to the JD-R model have proposed the possibility that, when job demands arise, workers could change their way of responding to this situation in a significant way (Eatough et al., 2011; Gilboa et al., 2008; Tadić et al., 2015). These studies suggest that employees can react positively to situations of ambiguity when they perceive that facing them can lead to positive consequences.

Very few studies have addressed the possible positive influence of role ambiguity on employee engagement, and more specifically on their intellectual contribution (Sun et al., 2019). Solberg & Wong (2016) have found results along these lines, and conclude that, in certain situations with high levels of job demands, increases in employee engagement levels can be generated, depending on the perception that they have of the conditions in which high demands appear. In this line, the results found by Antwi et al. (2019) and Martín-Martín et al. (2022) are of interest, where it is concluded that positive and negative responses to a demand can occur at the same time in a work context, with a curvilinear relationship appearing between these variables depending on the degree to which the stressor is perceived by the employee. Based on this, the

Hypothesis 2: The relationship between role ambiguity and intellectual commitment will not be linear, but curvilinear, generating at a certain point a change in tendency.

Therefore, this paper aims to open a new line of debate on the possible curvilinear effect, from negative to positive of role ambiguity as a job demand on the intellectual contribution of employees, based on the distinction between hindrance demands and challenge demands made by Bakker and Demerouti (2017) from the JD-R model.

Method

Sample

The sample is made up of 122 management, administration and services employees of a Spanish university. This sample includes 1.6 % of individuals between 31 and 35 years old, 8.2 % between 36 and 40 years old, 10.7 % between 41 and 45 years old, 40.2 % between 46 and 50 years old, 32 % between 51 and 55 years old, 6.6 % between 56 and 60 years old and 8 % over 60 years old. Regarding gender, 30.3 % of the sample analyzed were men. Regarding the academic level, 3.3 % have a secondary education degree, 16.4 % have achieved a baccalaureate or higher vocational training degree, 60.6 % have a university education, and 19.7 % have a postgraduate or doctorate degree.

Procedure

The Ethics Committee of the University of Almeria approved the study (UALBIO2018/027). The research team contacted and explained the purpose of the project to the university management. Once they agreed to participate in the project, the workers were informed by their service managers about the purpose of the study and its relevance to the organization. All participants signed an informed consent form before participating in the study. The questionnaires were administered in group sessions during the working day and at the organization's own facilities.

Prior to data collection, all participants received the necessary instructions, and the research team answered all questions about the study or the tool. The confidentiality and anonymity of the participants is guaranteed in the processing of information using codes in the questionnaires.

Instruments

Role ambiguity

To measure role ambiguity, the dimension of the same name was used in the tool developed by Rizzo et al. (1970), which was adapted and validated for use in Spain by Peiró et al. (1986). This scale consists of 6 items and measures the degree of uncertainty that the worker feels when performing his or her job. (i.e.: I know well the degree of autonomy in my job). The response options were presented on a Likert scale with 5 categories, ranging from 1 (strongly disagree) to 5 (strongly agree), following the original design of the scale, this dimension is inverted, with highest scores on the scale indicating a higher level of ambiguity. Cronbach's Alpha for this scale was 0.86.

Intellectual engagement

The Spanish version of the ISA Engagement Scale (Mañas-Rodríguez et al., 2016) was used to measure this dimension. This scale is based on the development of the application of the same name by Soane et al. (2012). This tool consists of three items that ask the degree of workers' focus in their workplace (i.e., "I pay a lot of attention to my work"). The response options were presented on a Likert scale with 7 categories, ranging from 1 (strongly disagree) to 7 (strongly agree), following the original design of the scale, those with higher scores indicating a higher level of engagement. Cronbach's alpha for this scale was 0.94.

Control variables. Because the evaluation of the work context is sensitive to the gender and age of the workers (Bertolino et al., 2011), we controlled for these two demographic characteristics. For gender, a dichotomy scale was used ("Female vs. Male"), and for the age measure, a Likert-type scale with 5 categories was used (1: "18 - 25 years", 2: "26 - 35 years", 3: "36 - 45 years", 4: "46 - 55 years", and 5: "56 years or older").

Data analysis

Hierarchical regression analyses were performed with the SPSS statistical program (version 26) to evaluate both linear and nonlinear relationships (Cohen et al., 1983). The regression analyses process consists of three steps: In the first step, the control variables (i.e., gender and age) were entered to see their influence on the dependent variable. In the second step, the independent term (role ambiguity) was included to test its linear relationship with the dependent variable (intellectual engagement) in situations of role ambiguity with medium and low levels. Finally, role ambiguity was entered into the model as an indicator of linear overprint (squared term). If the contribution of the squared term is statistically significant, the maximization hypothesis is rejected (Stimson et al., 1978), and graphical representations are used to show support for impartiality: symmetric or asymmetric (see Figure 1). The independent variables were focused to reduce possible multicollinearity problems (Kreft et al., 1995).

Results

Table 1 shows the means, standard deviations, and bivariate correlations between the variables. We observed a significant negative correlation between perceptions of role ambiguity and intellectual engagement (-0.31**). The relationships between role ambiguity with age and intellectual engagement with age were not significant. These results suggest that increased role ambiguity for the worker, in terms of perceptions of ambiguity, was associated with a lower intellectual engagement.

Table 1
Descriptive data and correlations

Variable	Scale	Mean	SD	2	3
1. Role Ambiguity	1-5	3.88	0.69	-0.31**	0.16 ^{n/s}
2. Intellectual Engagement	1-7	5.81	0.73		0.06 ^{n/s}
3. Age	1-5	4.41	1.63		--
4. Gender	Dummy	--	--		--

Note. **p > 0.001, n/s: not significant

The results of the hierarchical regressions are presented in Table 2. The results indicated that linear perceived benefit terms predicted a reduction of the values of intellectual engagement in employees ($\beta: -0.33, p < 0.05$). In contrast, the linear overprinting (role ambiguity squared) was also significant, but with a change of sign to show a positive influence ($\beta: 0.27, p < 0.05$). This shows variation in intellectual engagement, beyond the predictive capacity of the linear term and the control variables ($\Delta R^2: 0.06, p < 0.001$). Therefore, our findings supported a curvilinear relationship between perceptions of role ambiguity and intellectual engagement. Because the contribution of the squared terms was significant, the maximization hypothesis was rejected.

Table 2
Regression analysis

Steps	Intellectual Engagement β	p
<i>Step 1</i>		
Age	0.02	0.64
Gender	-0.16	0.27
ΔR^2	0.01	0.43
<i>Step 2</i>		
Role Ambiguity	-0.33	0.00
ΔR^2	0.09	0.00
<i>Step 3</i>		
Role Ambiguity ²	0.27	0.00
ΔR^2	0.06	0.00

Note. β Standardized Coefficient.

The positives β in the final step show non-linear relationships, represented by U-shapes (see Figure 1). This figure confirmed the asymmetric curvilinear shape in relationships. The highest intellectual engagement is observed around the low role ambiguity zone. Intellectual engagement scores are reduced when perceptions approach mid-levels of perceptions of role ambiguity. Finally, intellectual engagement improves slightly when perceptions approach the area of role ambiguity.

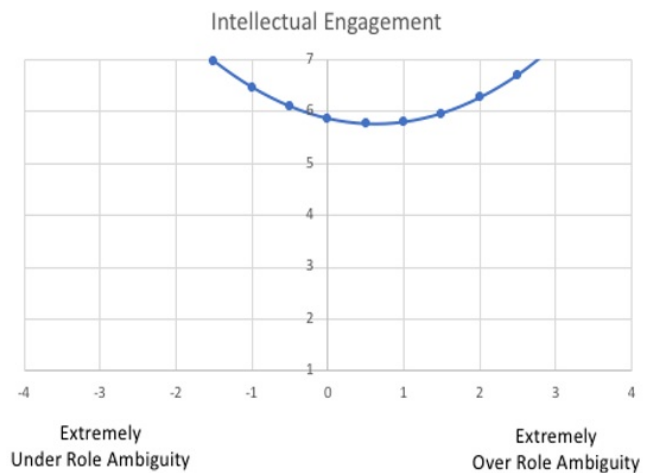


Figure 1.
Curvilinear relationship between role ambiguity and intellectual engagement.

Discussion

The present research study contributes to deepening the knowledge of the different roles that labor demands can take in the organizational context of a public administration, and how these can vary, affecting the consequences they have for employees and the organization itself. Specifically, the results demonstrate the influence of the perception of role ambiguity in the technical staff of management, administration and services of a Spanish university on their evaluations of intellectual engagement towards their organization. The results confirm an asymmetric curvilinear relationship, in which the evaluations

of intellectual engagement are reduced in these employees when they perceive increasing situations of role ambiguity. This negative influence on the level of intellectual engagement changes and becomes positive when faced with medium or even high perceptions of role ambiguity, increasing the employee's intellectual engagement when their perceptions of role ambiguity rise to the highest values of the scale. These results lead us to confirm the two hypotheses previously stated in this study. The first hypothesis stated that workers subjected to work contexts with increasing levels of demands, such as role ambiguity, will initially experience a reduction in their level of intellectual engagement with the organization. In the second hypothesis, it is proposed that the relationship between role ambiguity and intellectual engagement will not be linear, but curvilinear, generating at a certain point, a change in trend. The findings of non-linear relationships between role ambiguity and intellectual engagement in management, administration and services employees of a Spanish public university, identify the double role of role ambiguity. Depending on the employee's level of perception of this demand, it can act as a hindrance demand or as a challenging demand regarding their emotional state.

The results shown in this study despite supporting in its first hypothesis the research generated around the negative influence of demands in higher education institutions in line with other previous results (Díaz-Corchuelo, 2015; Elema et al., 2021; Han et al., 2020; Lee et al., 2022; Mark & Smith, 2018; Puertas-Molero et al., 2018; Stang-Rabrig, et al., 2022; Williams et al., 2017; Xu et al., 2023), also confirm that job demands do not have to entail only negative consequences (De Clercq, 2019; McMahan & Evans, 2018). The data reinforce the idea of Martín-Martín et al. (2022) and Solberg & Wong (2016), who conclude that, in certain situations with high levels of job demands, the employee response will be to increase engagement levels.

In the specific case of role ambiguity object of this study, this is a construct that is traditionally identified as a hindering demand (Cladellas-

Pros et al., 2018; Maden-Eyiusta, 2019; Nava & Zavala, 2017; Yousefi & Abdullah, 2019). Very few works that have addressed the possible positive influence of role ambiguity (Martínez-Díaz et al., 2021), and especially in the administration and services staff of a public university. The results of this research are in line with those authors who point out that role ambiguity has a negative effect on the engagement of public administration employees, but we clarify that this negative effect will be mainly in the initial periods of perception of role ambiguity, when the worker increases this perception. For all these reasons, this paper opens a new line of debate on the possible positive effect of this job demand on the intellectual contribution of employees, although this occurs at the highest levels of perceived ambiguity.

Theoretical implications

Most research has associated the existence of job demands with a reduction in employee engagement levels (Halbesleben, 2010). In this context, a pattern of disengagement is established where employees focus their efforts on reducing the loss of resources that would result from facing demands due to the perception of not achieving success or not being sufficiently challenging (Hobfoll, 1989). The results of the present study confirm these findings, but only at low levels of role ambiguity. That is, the results confirm that there are negative consequences for intellectual engagement from role ambiguity, but these appear only between the low and medium values of this demand.

From the perception of mean values of role ambiguity, the results report a change in trend, experiencing an increase in the employee's intellectual engagement. This conclusion coincides with the results of previous work that propose a positive influence of job demands when they are perceived as a challenge (Eatough et al., 2011; Gilboa et al., 2008; Martínez-Díaz et al., 2020).

These findings support the proposal of Bakker & Demerouti (2017) distinguishing between

hindering demands and challenging demands. The first are those that interfere negatively or inhibit the person's ability to achieve their goals (Cavanaugh et al., 2000; Demerouti & Bakker, 2011), while challenging demands are those that promote personal growth, so these types of demands will be perceived as rewarding work experiences (Demerouti & Bakker, 2011; Podsakoff et al., 2007). But they add the idea that this perception can occur at the same time in the same organizational context, where the levels of ambiguity are the same for everyone. Therefore, the response to demands seems to fluctuate in the same context depending on perceptual factors (Martín-Martín et al., 2022).

Therefore, the results of this present work shed clarity on the differentiation between hindering and challenging demands and open a new line of research around this concept. Therefore, it opens a new academic debate by suggesting that job demands do not necessarily have to be framed as either hindering or challenging demands, but that the same demand, in this case role ambiguity, can act ambivalently depending on the level at which it is perceived. This statement aligns with the recent publication by Solberg & Wong (2016), who have found how in contexts with high levels of demands, an increase in employee engagement levels can be generated, depending on the conditions in which they appear: those high demands. This idea expands the framework for studying demands by focusing on the knowledge of the factors that determine this change in value in perception that will lead to positive consequences.

Practical implications

Regarding the practical implications, the results of this study have influence on three levels: (1) The need to carry out an analysis and design of the job tasks that allows the level of ambiguity to be perceived as a challenge and not a hindrance to the employees; (2) the need to analyze the personal and organizational resources of employees so that they face job demands as a challenge; and (3) the opportunity for the

organization that, under the right circumstances, the increase of intellectual engagement by employees implies the implementation of a cycle of continuous improvement in the organization's human capital. These three levels of applicability revolve around the benefits of challenging the existence of role ambiguity in the work context.

Employees are subject to high levels of functional and emotional demands in their jobs. This situation usually entails negative implications for them, such as: sleep disturbances, development of emotional disorders and deterioration of physical health (Burke, 2009; Landsbergis et al., 1999). These negative implications not only affect individuals, but are also reflected in organizations, reducing employee engagement levels and productivity (Halbesleben, 2010). The results of this study suggest that a job analysis and design that allows employees to perceive existing demands as a challenge instead of a hindrance will favor the beginning of a positive spiral with positive results for their personal growth and reducing their negative effects (Mañas-Rodríguez et al., 2020).

In addition to redesigning jobs, employees' skills must be strengthened by increasing their own personal resources, and the organization's implementation of other contextual resources. Providing employees with resources to successfully deal with role ambiguity in each job would be key to facilitating the perception of these as challenges rather than hindrances.

According to the results found, facilitating the perception of job demands as a challenge is associated with an increase in employees' intellectual engagement. Therefore, this change in the perception of job demands will increase the employee's willingness to put all their knowledge and intellectual effort available to the organization. This can be a preliminary step to the implementation of a cycle of continuous improvement in the organization's human capital.

Finally, all these implications point towards increasing resources and changing employees' perceptions as the main strategy. However, it is also important to consider the need to restructure tasks and job design within the administration

itself to facilitate the objective completion of their work. This would be another way to reduce levels of ambiguity and the need for personal resources among employees.

Limitations and future research

However, there are some limitations to consider, especially for future replications of this study or similar research. First, the study sample is very specific: it focuses on the technical staff of management, administration, and services at a Spanish public university. These employees handle both research and teaching management, which means they interact with various groups (such as university administrators, professors, researchers, and students) who have different goals. This creates a unique context of ambiguity that differs from other public administrations. For future studies, we suggest replicating this research with Administration and Services staff from other public institutions in different cultural contexts, such as different professional fields or other countries, where perceptual factors may vary.

A second limitation lies in the research design chosen for this study: a cross-sectional study based on self-reported data from the employees themselves. Therefore, it would be convenient to contrast this data with other hard indicators of the organization, such as performance data, sick leave, quality indicators, etc. It would also be appropriate to have data at several different application times to see the behavior of these variables longitudinally.

Thirdly, it would be of great interest to analyze in future studies which personal and/or contextual resources show the greatest impact when modifying the perception of a job demand. For example, it is more positive to focus interventions within the organization on existing human resources policies (leadership style, work climate, communication policies...) or, on the contrary, they have more weight on the way in which the demands are perceived by the individual's own characteristics such as personality, level of optimism, and way of

perceiving reality. This would allow interventions to be structured and directed towards the most effective elements when perceiving the demands as challenges instead of seeing them as insurmountable hindrances.

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Notes

- * Research article.