Minimizing the effects of defensive routines on knowledge hiding though unlearning[☆]

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ABSTRACT

Knowledge hiding is an activity that often comes naturally to humans. When we are children, our parents hide certain information to protect us. As we age, we learn to develop defensive routines to protect ourselves and our weaknesses through knowledge hiding. In this study, intentional unlearning are assemblages of knowledge structures that individuals engage in to put aside certain number defensive routines and thus minimize their effects on hiding or misapplication of knowledge. This study analyses the applicability of an unlearning model focused on the effects of defensive routines on knowledge hiding. The empirical research is conducted with 122 airline travelers using two surveys (one in Spanish and the other in English). Since the travelers flew during the pandemic, they would have experienced first-hand the presence of defensive routines in the face of the new sanitary and safety measures. Data is analyzed using SmartPLS 3 for Windows. The results suggest that intentional unlearning is negatively related to defensive routines and furthermore that these routines are positively related to knowledge hiding. The results stand to improve the quality of service within airports and are beneficial for organizations undergoing change initiatives.

1. Introduction

Routines considered as knowledge structures have been proposed as sources of both stability and change in organizations (Becker, Lazaric, Nelson, & Winter, 2005; Rerup & Feldman, 2011). However, some routines can also constitute obstacles to innovation and thus create obstacles to the effective use and adoption of new knowledge and knowledge structures. Organizational routines may be classified into two distinct types – *enabling routines* and *organizational defensive routines* (Argyris 1986; Jacobs 2010; Noonan 2007). In general, enabling routines are assemblages of actions, performed by multiple individuals, that enable organizations and facilitate the achievement of organizational objectives. Such enabling routines are flexible and typically coordinated with other enabling routines and support the core functions of the organization. Furthermore, a subset of these enabling routines relates to

the organization's ability to innovate (Tranfield, Denyer, & Smart, 2003; Tranfield, Duberley, Smith, Musson, & Stokes, 2000).

In contrast, *organizational defensive routines* (hereafter ODRs) are actions or assemblages of actions that individuals engage in to avoid the creation of situations that are likely to cause embarrassment or are perceived to be a threat to the individual or relevant group(s) (Noonan 2007). It has been noted that individuals who are not confident about the knowledge they possess, are more likely to engage in these dysfunctional behaviours (Peng, 2013). From this perspective, ODRs could be considered as an integral part of strategies of self-protection (Carayannis, Grigoroudis, Del Giudice, Della Peruta, & Sindakis, 2017), which although not necessarily a bad thing, may result in the withholding, distortion or even the deletion of knowledge, and thus result in the concealment or mis-characterization of situations whose accurate perception may be critical to the success or even survival of the

organization (Connelly, Zweig, Webster, & Trougakos, 2012; Serenko & Bontis, 2016). Such acts may also be referred to as knowledge hiding - defined as an intentional attempt to conceal or withhold knowledge that others have requested (Connelly et al., 2012). Kumar Jha and Varkkey (2018) found that there are a number of reasons why people tend to hide their knowledge, which include both personal reasons (e.g., distrust, lack of reciprocity or lack of confidence in their own knowledge) and organizational reasons (e.g., the creation of additional work with no rewards or career insecurity). It has been noted that exploring knowledge hiding in a new context may well provide the basis for fruitful theoretical advances (Connelly, Černe, Dysvik, & Škerlavaj, 2019).

Knowledge hiding may be considered to be particularly troubling in the case of situations where organizations and/or their stakeholders experience major changes in their nature and/or environment as is the case in this study. One of the last things a customer (or other stakeholder) needs to experience when placed in an unfamiliar situation is having someone withhold relevant information (Serenko & Bontis, 2016; Wang, Han, Xiang, & Hampson, 2019). Moreover, feelings of stress and frustration may arise as a result of actions by individuals with whom customers interact such as deleting, distorting or reclassifying information, possibly causing customers and other individuals to make erroneous decisions or engage in inappropriate actions (Wang, Han, Xiang, & Hampson, 2019).

After a decade of record passenger traffic growth and unprecedented profitability, the global airline industry is facing an unprecedented, sharp and sustained drop in demand due to the coronavirus pandemic. The subject of this study, the Airport staff, assist and support the airport in all matters relating to improving safety, reliability, and productivity. This means that airport staff need to be aware of the potential impact of knowledge hiding on customers and other staff members who depend on their knowledge and skills (Babič, Černe, Connelly, Dysvik, & Škerlavaj, 2019). Failure to adequately respond to the existence of ODRs may well result in negative impacts on customers and negatively affect the efficiency of airport operations. Convincing passengers that it is safe to fly again means that the airport staff themselves follow and implement the new security measures such as the use of face masks, safety distance, hygienic measures, cleanliness, and disinfection. Even though Covid-19 related safety and health measures (instituted in 2020 and 2021) have been strict, and have generally discouraged flying, there have been people who have continued to fly and use airports. These people, better than anyone, can value the lack of knowledge motivated by certain defensive routines that have meant that many staff members are not determined to change their way of doing things.

It has always been said that knowledge is power. This is true because knowledge is key to increasing the productivity and performance of any business (Inkinen, 2016; Lerro, Linzalone, & Schiuma, 2014), harnessing the potential of its employees (Cabrilo & Dahms, 2018; Cegarra-Navarro, Papa, Garcia-Perez, & Fiano, 2019), and optimizing decision-making (Madsen, Mosakowski, & Zaheer, 2002; Soto-Acosta & Cegarra-Navarro, 2016). However, defensive routines may make individuals hide knowledge that would imply that the procedures/routines they are familiar with or choose to engage in are either inappropriate or clearly counter-productive. These routines may also result in individuals surrounding themselves with individuals who think like them and respond with cynicism to those who think differently. In these circumstances, to respond to change, individuals need to become aware of these defensive routines and discard them so that they can modify existing routines or replace them wholesale. This study focuses on the concept of intentional unlearning, which has been proposed as a reflective method of critical questioning the appropriateness of existing knowledge/decision making that is a prerequisite to searching for new knowledge, adopting new procedures or modifying existing procedures. Such unlearning enables individuals and organizations to modify existing procedures or learn new procedures. Thus, to respond to change organizations do not simply add new knowledge to existing knowledge they have to continually review their knowledge (and the knowledge

structures and procedures that rely on such knowledge, replacing or modifying knowledge as appropriate (Cegarra-Navarro, Soto-Acosta, & Martinez-Caro, 2016; Cegarra-Navarro & Wensley, 2019).

The objective of this study is to analyze how to overcome the presence of knowledge hiding generated by ODRs among airport staff with whom the travelers interact and to explore the effects of ODRs on intentional unlearning in the context of measures adopted because of Covid-19. In doing so, this study explores the unlearning structures involved in the adoption and implementation of new Covid-19 measures. The central proposition of this research being that intentional unlearning can potentially counteract the effects of ODRs through stimulating the deliberate updating of existing organizational knowledge and knowledge structures in the form of procedures, standards, and routines (Posavac, Kardes, & Joško Brakus, 2010). The results of this research are likely to be of benefit not just to airports but also for their staff members who are embracing new principles, attitudes, and behaviours because of the pandemic. Given the complex nature of the research questions and context, and its significant consequences for organizations and individuals, such a research design can provide an opportunity for further elaboration and highlight specific nuances of the defensive routines, knowledge hiding, and unlearning process (cf. Connelly et al, 2019).

2. Theoretical background

Defensive routines (ODRs) are patterns of interpersonal interaction that people create to protect themselves from embarrassment and threat (Argyris, 1992). ODRs involve the expression of such attitudes as cynicism, distancing and the blaming of others (Argyris, 1992; Noonan, 2007). Although people are aware that they shouldn't use defensive reasoning to deal with daily work decisions and challenges (Thornhill & Amit, 2003), they still use them in order to avoid the possibility of experiencing embarrassment or treat (Child, 1972; Sinkula, Baker, & Noordewier, 1997; Cheng & Yau, 2011). ODRs may over time become incompatible with close and positive working relationships as they interfere with the free and honest flow of information between employees (Hislop, Bosley, Coombs, & Holland, 2014). As such, ODRs can also be a source for bias, errors, mistakes and negative attitudes that could adversely affect the ability for manager to be effective (Coombs, Hislop, Holland, Bosley, & Manful, 2013; Fiol & O'Connor, 2017; Reese, 2017).

In order to break the shackles of past routines and/or outdated routines, organizations need to establish knowledge structures that explicitly identify and discard practices that act as roadblocks to the acquisition of new knowledge (Hedberg & Arbetslivscentrum, 1979). These structures comprise what may be referred to as organizational intentional unlearning routines, which are defined as the routines that involve the questioning, identifying, and putting aside the outdated, inaccurate or inappropriate knowledge (Argyris & Schön, 1996; Hedberg, 1981; Nguyen, 2017), routines (Fiol & O'Connor, 2017; Tsang & Zahra, 2008), dominant logic(s) (Bettis & Prahalad, 1995; Starbuck, 1996), and beliefs (Akgün, Byrne, Lynn, & Keskin, 2007; Lee & Sukoco, 2011), which hinder the creation and acquisition of new knowledge.

However, it is important to recognize that unlearning involves deliberately forgetting knowledge and is thus difficult to capture in a measure (Tsang, 2017b). That is, identifying what knowledge has been deliberately forgotten between time T0 and time T1 generally cannot be explicitly captured and must therefore be inferred. Akgün, Lynn, & Byrne (2006) operationalized unlearning as changes in beliefs and routines. However, when critically examining the questionnaires' items they use to identify such changes, it becomes evident that the questions target general change elements instead of actual unlearning, Yang, Chou and Chiu (2014) operationalized unlearning by measuring changes in the strength of ties between firms and suppliers/customers. However, this would appear to be a very indirect way of measuring unlearning. Sheaffer and Mano-Negrin (2003) measured unlearning with three

items. One item targeted the firm's investment in unlearning, while the remaining two questions aim at providing information about the change initiatives of the firm. Clearly these measures can be argued to be related to unlearning but again are indirect and somewhat tenuous. In contrast, Cegarra-Navarro and Wensley (2019) developed a framework for measuring organizational unlearning through identifying the degree to which 'unlearning' is potentially facilitated within an organization. Such facilitation is considered to be fostered through the existence of what they consider to be an "unlearning context". They posit that the presence of an unlearning context is a necessary pre-condition for unlearning to take place. Thus, although not directly related to unlearning, per se, the strength of an organization's unlearning context can be considered to be a measure of the potential of an organization for unlearning. We would further note that questions relating to whether particular behaviours or procedures that constitute an unlearning context may well indicate whether unlearning is taking place but this (these insights) will tend to be of limited informativeness given their lack of granularity. For example, if we ask respondents who indicate that opportunities are given to question existing knowledge and assumptions whether this actually results in erasure or modification of knowledge this clearly represents unlearning though at a very undifferentiated level.

In the context of this study aspects of the unlearning context can be considered to influence or facilitate the discarding of ODRs. In this vein, security protocols, boarding and check-in procedures are knowledge structures so well established in airports that many times they have been used as an excuse for not promoting the implementation of health measures against Covid 19. For example, the use of face masks in airports makes facial recognition difficult, and traditional security and boarding protocols make social distance difficult (Bolat & Ateş, 2020; Sun, Wandelt, Zheng, & Zhang, 2021). Hence, the focus of this research is on the degree to which am unlearning context is present in the organization rather than on the knowledge that have potentially been unlearned (Fernandez & Sune, 2009).

Routines that constitute an unlearning context in an organization can allow individuals to look beyond personal ODRs and see how they function within the broader context of the groups to which they belong, other organizational routines, decision-making, and organizational culture (Becker, 2005, 2010; Cegarra-Navarro & Wensley, 2019). Such unlearning contexts facilitate critical questioning of established routines and introduce a measure of mindfulness into perceptions and subsequent understandings of the organizations and its routines (Sallos, Garcia-Perez, Bedford, & Orlando, 2019). This allows for the re-evaluation of the efficacy or appropriateness of the organization's enabling routines and ODRs, as well as the re-evaluation of underlying mental models, patterns of reasoning and decision-making. Moreover, the presence of unlearning contexts enables double loop learning and potentially facilitate the renewal and sharing of organizational knowledge (Noonan 2007). Such renewal and sharing can lead to positive attitudes that can also help to create 'good will' for negotiating and creating improved opportunities among shareholders, managers and employees (Lee, 2010). In other words, the positive benefits of an unlearning context encourage organizational members to discuss decisions, responses and strategies more openly. This increases trust between individuals thus reducing the potential for embarrassment and knowledge hiding, and therefore minimizing the need to use ODRs either individually or in groups (Madrid, Patterson, & Leiva, 2015).

Several scholars have highlighted the crucial role of knowledge structures and routines in creating a context that favours openness to new approaches and new knowledge within an organization (Del Giudice & Maggioni, 2014; Papa, Dezi, Gregori, Mueller, & Miglietta, 2018; Simao & Franco, 2018). Similarly, an unlearning context requires the investigation of existing knowledge structures and routines in order to augment the capabilities of awareness, relinquishing and relearning (Cegarra-Navarro, Wensley, Garcia-Perez, & Sotos-Villarejo, 2016; Leal-Rodríguez, Eldridge, Roldán, Leal-Millán, & Ortega-Gutiérrez, 2015;

Sallos, Garcia-Perez, Bedford, & Orlando, 2019). This, in turn, facilitates the emergence of new knowledge and the replacement of outdated knowledge thus undermining the negative potential of ODRs (Cegarra-Navarro & Martelo-Landroguez, 2020; Tsang and Zahra, 2008). A categorization of these specific knowledge structures and routines are explained below:

1) Awareness: The first type of knowledge structure and routines involves individuals creating an awareness of "bad reactions, inappropriate responses to other people's emotions or inappropriate or incorrect ideas about ourselves and the others" which have a negative impact on working relationships and are likely to reduce the level of trust between organizational members (Becker 2008; Starbuck 1996). Creating a safe environment that facilitates and encourages contact and communication among individuals with significantly different perspectives through formal and informal procedures is one activity that may help airport staff to consider new approaches and see the organization from a variety of different perspectives (Haeckel, 2004). The creation of such a safe environment can reduce the likelihood of airport staff implementing ODRs and hence reduce the occurrence of negative behaviours such as knowledge hiding and knowledge distortion (Jiang, Hu, Wang, & Jiang, 2019).

2) Relinquishing: The second set of knowledge structures and routines, which need to be developed and encouraged, are those that involve taking active steps to correct bad habits that lead to negative feelings (e.g., being misunderstood, considered to be flawed, undervalued or even considered to be weak) (Cegarra-Navarro & Wensley, 2019). Thus, relinquishing involves the encouragement and development of knowledge structures and routines that facilitate thinking and acting beyond traditional approaches that seek to minimize exhaustion and frustration and focus more on identifying accurately the existing state-of-affairs and appropriate responses (Grant, Parker, & Collins, 2009). These knowledge structures and routines are likely to lead to the relinquishing of ODRs and concomitantly such behaviours as knowledge hiding and/or knowledge distortion. It should be noted that the only way to intentionally relinquish a bad routine is by replacing it with a new one that provides superior benefits (Cepeda-Carrion, Cegarra-Navarro, & Jimenez-Jimenez, 2012). In other words, exposing incorrect or inappropriate presuppositions and assumptions (Srithika & Bhattacharyya, 2009), that arise from exposure to ODRs, can be overcome by utilizing new understandings (Zhao, Lu, & Wang, 2013) leading to their replacement.

3) Relearning: This involves discarding or modifying defensive routines, which inevitably takes time and effort and needs to be adequately supported. The relearned set of routines broadens the effects of relinquishing with the implementation of new understandings and solutions at the organizational level, which may well result in the modification or replacement of ODRs (Pighin & Marzona, 2011; Tabassum Azmi, 2008; Wang, Lu, Zhao, Gong, & Li, 2013). Relearning refers to the development and utilization of routines that involve taking all the necessary steps to adapt and use new patterns that may emerge as a result of relinquishing existing routines and replacing them with more appropriate routines (Reese, 2017; Zhao et al., 2013).

What intentional unlearning means for ODRs is that there may be instances where it is possible to enhance efficiency through the replacement or modification of defensive routines. There is also a reduction in costs associated with the reliance on inferior or inaccurate knowledge or the mis-communication and/or the mis-interpretation of knowledge (Cegarra-Navarro, Wensley, Garcia-Perez, & Sotos-Villarejo, 2016; Day & Schoemaker, 2004; Haeckel, 2004). In accordance with the arguments above, the following hypothesis is proposed:

H1: The more prevalent the unlearning context the less airport staff make use of defensive routines.

One classical routine, used in many cases, is for individuals to seek to make their superior think that they are doing a good job, even when they are not. This may be achieved by deliberately hiding information, distorting information, spurious interpretations of existing information

(Yao, Zhang, Luo, & Huang, 2020), or questioning the validity of information, indicating negative performance (Taylor & Bright, 2011). Under these circumstances, ODRs lead to, among other outcomes, organizational members becoming more or less prone to knowledge hiding (Argyris, 1992; Noonan, 2007) as they essentially involve distortions to the information available to organizational decision-makers, potentially leading to inferior organizational performance. For example, decision-makers may incorrectly diagnose problems and, as a result, make inappropriate and potentially damaging decisions (Peng, Wang, Dong, & Zhang, 2018). Furthermore, decision-makers may fail to recognize new opportunities or learn from and adapt to dynamic changing environments (Černe, Nerstad, Dysvik, & Škerlavaj, 2014; Connelly & Zweig, 2015).

Since individuals either consciously hide some knowledge or feel powerless to show some dissatisfaction with the billing, boarding or security protocols that have been maintained despite the pandemic (Černe et al., 2014; Connelly & Zweig, 2015), two types of ODRs, potentially involving the hiding or distortion of knowledge may arise (Argyris, 1992; Noonan, 2007). On the one hand, there are individual defensive routines that individuals engage in that have the goal of avoiding individual embarrassment or threats individual (e.g. avoiding personal action because of negative feelings resulting from such action or avoiding concomitant embarrassment) (Wang, Law, Zhang, Li, & Liang, 2019). On the other hand, there are defensive routines created as a result of peer pressure (e.g., routines that encourage individuals in an organization to engage in actions that do not undermine or bring into question established decisions and strategies). These types of defensive routines arise in organizational cultures where compliant behaviour is favoured, and they flourish when 'rocking the boat' is seen as a negative action or in situations where promotion and success are tied to being a 'yes' person (Zhu, Chen, Wang, Jin, & Wang, 2019).

As shown in Fig. 1, the aim of this study is to better understand how intentional unlearning can help in preventing the adoption of defensive routines aimed at enhancing people's predisposition to hide knowledge. The study also seeks to explore how knowledge hiding is influenced by defensive routines. Thus, the second hypothesis is formulated as follows:

H2: The more defensive routines airport staff take the more knowledge they hide.

3. Method

3.1. Data collection

Before proceeding with data collection, the researchers consulted with AENA or the Aeropuertos Españoles y Navegación Aérea. to better understand some of the limitations of the qualitative methodology used to operationalize the constructs under study. For example, the researchers were told that it is difficult for an individual in a qualitative study to recognize that they are hiding information or that they are reluctant to drive change within the company. Based on this consultation, AENA suggested that the best sources of information to explore the constructs under study were the passengers themselves. Furthermore, AENA stressed that the restrictions promoted by the pandemic (during the years 2020 and 2021) provided an ideal environment for passengers to assess the presence of unlearning, defensive routines, and knowledge hiding.

Based on the above, an empirical investigation was initiated under the supervision of a team of international faculty members specializing in unlearning. Given the focus of the study knowledge workers, graduate students and academic members of the international community were targeted as respondents. However, respondents were only considered if they had flown between Dec 2019 and June 2021. E-mail invitations, in English and Spanish, were sent directly to the respondents (i.e., in most cases, the institutional addresses were used) and one member of the research team acted as a facilitator on social media, supporting the relevance of the empirical scrutiny. The questionnaire was translated in Spanish using previously validated measures using the back translation procedure proposed by Brislin (1970).

The survey was administered over a period of three weeks in June 2021. A total of 127 responses were originally received and 122 questionnaires were identified as useable for the current study (56 male and 66 female; mean age = 32.9). Table 1 illustrates the demographical data of the respondents.

Potential non-response bias was addressed by comparing the 69 English responses and the 53 Spanish responses in terms of unlearning, defensive routines and knowledge hiding. The independent sample *t*-test revealed no significant difference between the two groups ($p = 0.169, p = 0.293$ and $p = 0.144$, respectively). Therefore, non-response bias should not be a problem in this study (Armstrong & Overton, 1977). To minimize data bias, a check for common method bias was conducted using Harman's single factor test (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003; Podsakoff & Organ, 1986). Results of a post-hoc Harman's single-factor test showed that the unrotated factor solution of the one-factor model accounted for less than 50% of the variance (47.1%), indicating no substantial common method bias. This study also used a confirmatory factor-analytic approach to the Harman one-factor test as a way of testing for the presence of bias (Podsakoff et al., 2003). A worse fit, for the one-factor model, would suggest that common method variance does not pose a serious threat. The one-factor model yielded a Satorra-Bentler $\chi^2_{(35)} = 148.88$; $\chi^2/\text{d.f} = 4.25$ (compared with the measurement model, which yielded a Satorra-Bentler $\chi^2_{(32)} = 78.16$; $\chi^2/\text{d.f} = 2.44$). This means that the fit is considerably worse for the one-dimensional model than for the measurement model, suggesting no substantial common method bias (Armstrong & Overton, 1977).

Table 1
Demographic characteristics of the respondents.

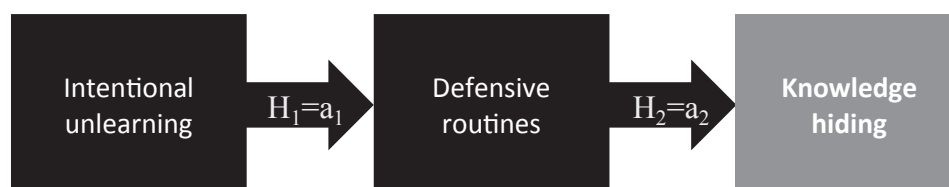| Demographics (N = 122)		Frequency	Relative Frequency %
Gender	Male	56	45.9%
	Female	66	54.1%
What was the reason for your last flight?	Leisure	83	68%
	Business	39	32%
What was the date of your last flight?	December 2019 to June 2020	15	12.3%
	July 2020 to December 2020	42	34.4%
	January 2021 to June 2021	65	53.3%

Fig. 1. Theoretical model.

3.2. Measures

All constructs were self-reported and measured using a 7-point Likert scale (1="high disagreement" to 7 "high agreement".

Intentional unlearning. Previous studies by Cegarra-Navarro and Wensley (2019) provided guidance in developing intentional unlearning items. Five items assessed the importance of intentional unlearning' for incorporating Covid-19 measures and innovative changes into passenger services.

Defensive routines. Four items were used to measure defensive routines (DR). These items assessed the extent to which airport staff were able to adapt the security, check-in and safety procedures, as compared to the pre-Covid-19 context (Yang et al. 2018).

Knowledge hiding. Knowledge hiding (KH) was assessed with four items developed by Connelly et al. (2012). These items focused on the perception of travelers regarding the information offered by airport staff regarding the pandemic, the concealment of information responded to the information not provided or partially supplied.

A complete list of items is provided in the Appendix.

3.3. Data analysis

Variance-based partial least squares (PLS) procedure to analyses data has been often used as a modelling approach in management and business research (Cording, Christmann, & King, 2008; Henseler, Ringle, & Sinkovics, 2009). The primary aim of the PLS procedure is to maximize the variance explained in latent and endogenous variables (Becker, Klein, & Wetzels, 2012). Given the sample size (n = 122) of this study is relatively small, the use of an analytical technique that maximized power while permitting simultaneous estimation of path coefficients seemed most warranted (Koran, 2020). SmartPLS 3.3.3 was used in data analysis (Ringle et al. 2005). Following Cepeda-Carrion et al.'s (2019) classification of PLS-SEM purposes, the present study is causal, which involves testing hypotheses in a specific model and maximizing the explained variance of the dependent, considering the fit indices in the model. Since endogeneity could be a problem, a two-step procedure has been established to evaluate it in this study (Hair, Sarstedt, & Ringle, 2019): (1) assessment of the measurement model and (2) assessment of the structural model. A bootstrap procedure (Chin, 1998) was used in order to evaluate the significance of the fit indices, path coefficients, weights, and loadings of each composite's indicators.

The measured latent marker variable (MLMV) approach was used to detect potential problems of common method variance (CMV), which is a method suggested for handling CMV in PLS-SEM models (Chin et al., 2013). Following the MLMV approach, a variable measuring user's intention to travel would be included, since it is measured at the respondent's personal level and does not belong to the same domain as the variables included in the proposed model. As reported in Table 2, the results showed that the difference found in the R2 value of endogenous variables after taking out the user's intention to travel is not significantly different, which is less than 10% (Chin et al., 2013; Podsakoff et al., 2003). These additional tests reinforce the argument that the model proposed in this study is free of CMV issues.

3.4. Results

3.4.1. Measurement model

Following Hair et al. (2019), a measurement model was assessed. Results exhibit that it meets all the commonly designated measures of reliability and validity. First, individual reliability was sufficient because all standardized loadings are larger than 0.7 for all the constructs, except for one item of each one of the composites (i.e., UL5, DR2, and HD3). These items were removed. All other items were retained because the rest of indices assessing the measurement model surpassed the established thresholds (Hair et al., 2019). Second, all measures of composite reliability were larger than 0.8 and the values for average variance extracted (AVE) exceeded the threshold of 0.5 for convergent validity (Table 3). Finally, a full collinearity test, based on variance inflation factors (VIFs), was carried out. According to Kock and Lynn (2012), when a VIF achieves a value greater than 3.3, there would be an indication of collinearity problems. This would warn if a model may be contaminated by CMV. The present model, with a maximum VIF of 2.362 may be considered free of CMV problems.

As shown in Table 4, all the constructs show discriminant validity since all HTMT indices are below 0.90 (Henseler, Ringle, & Sarstedt, 2015). In addition, each construct related more strongly to its own measures than to others (Fornell & Larcker, 1981). Therefore, there is evidence of discriminant validity (Henseler et al., 2015).

3.4.2. Structural model

Considering the confirmatory nature of our PLS-SEM analysis, fit indices were calculated for the saturated model from the proposed model (Henseler & Schuberth, 2020). As shown Table 5, all fit indices for the saturated model meet the requirements to confirm the proposed measurement model. Based on Benitez et al. (2020), the fit statistics for the model indicate a reasonable data fit. The standardized root mean square residual (SRMR) value of the measurement model was 0.076 and all discrepancies were below the 99%-quantile of the bootstrap discrepancies (Hi99), which suggests very good measurement model fit (Henseler, Hubona, & Ray, 2016). Therefore, there is a good adjustment between the empirical data matrix and the theoretical model matrix (Henseler, 2018).

Following Hair et al. (2019) the sign, magnitude, and significance of path coefficients, which are the most important results of the structural model, were assessed. Likewise, the aim of PLS-SEM algorithm maximizes the explained variance of the dependent variables represented by determination coefficient (i.e., R^2). As Hair et al. (2019) argue, the use of bootstrapping (5,000 resamples) produces confident intervals to assess the statistical significance of the path coefficients. Thus, the consideration of bootstrap percentile confidence intervals provides greater assurance than merely relying on null hypothesis significance testing. The effect size f^2, which shows the change in R^2 if a specified construct is omitted from the model, is also reported. A guideline of 0,02, 0,15, and

Table 2
Statistical Remedy of Common Method Variance (CMV).

Variables	R2 not including user's intention to travel	R2 including user's intention to travel
DR	0.391	0.418
KH	0.246	0.253

Notes:
DR → Defensive Routines; KH → Knowledge hiding.

Table 3
Measurement Model.

Construct	Indicator	Loadings	Composite reliability	Rho A [a]	AVE [b]
Intentional Unlearning	IU1	0.820	0.887	0.841	0.663
	IU2	0.777			
	IU3	0.873			
	IU4	0.783			
Defensive Routines	DR1	0.821	0.879	0.795	0.709
	DR2	0.903			
	DR3	0.798			
Hiding Knowledge	KH1	0.865	0.857	0.760	0.668
	KH2	0.864			
	KH3	0.713			

Notes:
[a] Dijkstra-Henseler's rho → (Rho A);
[b] Average variance extracted→ (AVE).

Table 4
Discriminant validity (Fornell and Larcker[a]'s and HTMT[b]).

Construct	DR	KH	IU
DR	**0.842**	0.643	0.766
KH	0.496	**0.817**	0.519
IU	−0.626	−0.417	**0.814**

Notes:

IU → Intentional Unlearning; DR → Defensive Routines; KH → Knowledge hiding.

[a] Diagonal values (square root of AVE are in bold) should be higher than off-diagonal correlations shown below the diagonal line

[b] Heterotrait-Monotrait Ratio of Correlations (HTMT) thresholds are shown above the diagonal line.

Table 5
Global goodness of fit, confirmatory composite analysis, and bootstrap-based 95% and 99% quantiles.

	Estimated Model	Hi95	Hi99	Saturated Model	Hi95	Hi99
SRMR	0.076	0.075	**0.087**	0.076	0.073	**0.085**
d_{ULS}	0.318	0.312	**0.419**	0.314	0.293	**0.396**
d_G	0.175	**0.186**	**0.243**	0.174	**0.186**	**0.243**

Notes:

The figure in bold indicates the level of compliance with the index of adjustment. SRMR: Standardised Root Mean Square Residual, d_{ULS}: Unweighted Least Squares Discrepancy, d_G: Geodesic Discrepancy.

0,35 represent respectively, small, medium, and large effects (Cohen, 1977). Additionally, two control variables [i.e., Gender (male = 1 and female = 2) and the date of the last flight (December 2019 to June 2020 = 1; July 2020 to December 2020 = 2; and January 2021 to June 2021 = 3)] were included to test if context variables influence the path-coefficient estimations. Finally, a post-hoc indirect effect analysis was performed to test the indirect effect of UI on KH through DR (Preacher & Hayes, 2008). As Table 6 shows, the indirect effect of 'CL' on 'IT assimilation' via the presence of KB is negative and statistically significant (i.e., minus multiplied by plus is equal to minus). Consequently, the results provided full support for hypotheses H1 and H2.

4. Discussion

4.1. Implications for theory

This study employed a quantitative approach to glean a better understanding as to how the new pandemic-related flight regulations and procedures have affected people predisposition to travel. Travelers were considered to be knowledge workers who not only share information but also make effective use of knowledge based on this information. Since ODRs can hinder workplace productivity and collaboration of airport staff with travelers, the results from this research provided an opportunity to briefly reflect on Shujahat et al. (2019) findings of knowledge workers productivity. In their paper published in JBR, they found that knowledge worker-productivity did mediate between knowledge sharing and innovation. One possible explanation this study offers for these findings is the fact that the presence of ODRs may hinder people from sharing knowledge. Therefore, the findings of this study contribute to the current literature on knowledge hiding and ODRs, and their potential interrelationship, in two important ways. First, the conceptual framework and results provide support for the theoretical proposition on the importance of ODRs in triggering behaviours resulting in knowledge hiding (e.g. Demirkasimoglu, 2015; Hernaus et al., 2019). Second, this empirical study considers how the mitigation of faulty defensive reasoning can be exploited as a basis for potentially mitigating knowledge hiding.

In the model proposed in the Fig. 1, the direct causal relationship between unlearning and knowledge hiding could be included. However, in doing the fit of the model worsens due in large part to the negative correlation between the two variables (Table 4). A possible explanation for these results would be that to unlearn intentionally it is necessary to identify those structures of knowledge that one wishes to update or simply put aside (Martignoni & Keil, 2021). In the case of knowledge hiding, since these structures are hidden and not manifested, it is practically impossible to identify them (Wang et al., 2019; Xiong, Chang, Scuotto, Shi, & Paoloni, 2019). For this reason, unlearning acts indirectly on hidden knowledge, counteracting the defensive routines that manifest and give rise to it. Therefore, the findings of this study also contribute to expanding what is known about knowledge hiding, by adding a further understanding of why individuals might hide knowledge.

The above results are in line with ODRs literature suggesting that defensive reasoning can take two forms, routines that are consciously implemented by individuals and those that arise out of a desire to conform to peer pressure in conservative environments where change itself is seen to be a threat (Noonan 2007). In the current context, where restrictions and regulations change overnight, air passengers may have the feeling that knowledge is being withheld from them when in fact the airport staff do not have the time to reflect and weigh the knowledge they can share. This provides a further developed of the reciprocity loop of knowledge hiding (Černe et al., 2014), by providing concrete reasons why an individual may hide knowledge in the first place. For example, defensive reasoning justified by the presence of qualities such as prudence or shyness, which on some occasions is necessary to think before acting, in the current scenario of global change, may be perceived as knowledge hiding from the perspective of air passengers. This supports the notion that the nature of work relationships between individuals (Nebus, 2006) or failure to conform to the expectations of groups (e.g., performance) (Taylor & Bright, 2011), may lead to knowledge hiding, further resulting in the restriction or distortion of the information available for decision-makers (e.g., line managers). Thus, it comes as no surprise that the presence of ODRs facilitates evasive answers, such as the refusal to give any information, complete silence, and sometimes

Table 6
Structural Model.

Confidence intervals						
Hypotheses	Path coefficient	5% CI_{lo}	95% CI_{hi}	Significance (p-value)	Cohen's f-square	R^2
H₁: IU → DR	a_1 = -0.626	−0.717	−0.541	**0.000**	0.643	0.391
H₂: DR → KH	a_2 = 0.496	0.400	0.613	**0.000**	0.326	0.246
Gender → KH	−0.033	−0.175	0.106	0.350	0.001	0.246
Date flight → KH	−0.018	−0.163	0.115	0.417	0.000	0.246
Indirect relationship	Path coefficient	5% CI_{lo}	95% CI_{hi}	Significance (p-value)		
IU → DR → KH (a_1*a_2)	−0.310	−0.408	−0.237	**0.000**		

Notes:

IU → Intentional Unlearning; DR → Defensive Routines; KH → Knowledge hiding.

even outright lies (Grant et al., 2009; Jiang et al., 2019).

4.2. Implications for practice

The above discussion suggests that a more fine-grained theory is needed for knowledge hiding, one that considers the presence of ODRs. In fact, stating that ODRs positively affect knowledge hiding seems to capture the detrimental effects that defensive responses may have on knowledge hiding (Connelly et al., 2019) and organizational performance (Zhang & Min, 2019). The most challenging claims of this article relate to how this problem can be addressed through the creation of an unlearning context. It is worth mentioning that the context described above have varying degrees of impact on the operationalization of the awareness, relinquishing and relearning structures. The presence of some factors, such as lack of trust, cultural differences, lack of training, bureaucracy, hierarchy, or incoherent understandings, has a strong potential to trigger the invocation of defensive reasoning among people who have to face new airport regulations as a result of the pandemic. However, these new airport regulations may also create a 'discomfort zone' which potentially stimulates the updating of outdated routines, assumptions and beliefs through the three unlearning subprocess mentioned (Aledo Ruíz, Gutiérrez Ortega, Martínez-Caro, & Cegarra-Navarro, 2017). It has been observed that the implementation of an unlearning context may well be one of the factors leading to changing the valence of these factors from negative to positive.

This study also provides some constructive guidelines to senior management seeking to mitigate the consequences of ODRs on knowledge hiding. The implications of the above-mentioned findings for practice are that senior managers may need to be aware that even in a different context, and under different external influences, if they stick to their guns, it may impede the implementation of new approaches. Indeed, some managers are likely to be reluctant and lazy when it comes to handling new routines that come from their subordinates. In such circumstances, even though negative responses from senior managers cannot be completely controlled by an organization, job rotation may help. Results also highlight that unlearning does not just affect defensive reasoning but also indirectly affects knowledge hiding. A possible explanation is that the use of unlearning structures can be a better way of bringing out the shortcomings and imperfections in the airport staff relationship with travelers. For example, the presence of new airport regulations and the fact that senior managers may not know when they are being implemented, not only largely diverts them from defensive reasoning, but also can help them to avoid hiding any new information and rely more on their subordinates.

It is also worth mentioning that victims of ODRs, who really want to change things and find themselves unable to do so, may eventually resign from their positions. When ODRs prevail in an organization, they may also create a bad impression of the organization with its external stakeholders (e.g., travelers) and result in more people becoming isolated and vulnerable. Therefore, organizations should note that they can also be the victims of their own defensive routines and must accordingly take appropriate actions to tackle this.

4.3. Insights into the characteristics that help airport staff to overcome ODRs

The results suggested that airport staff needed to discard defensive reasoning and associated routines or unlearn. Although these routines (e.g., security protocols, boarding and check-in procedures) may have been appropriate in the past, in a new context (i.e., pandemic-related flight regulations), they needed to be updated. In doing so, awareness (i.e., increasing consciousness of dealing with mistakes), relinquishing (i.e., discarding faulty defensive reasoning), and relearning (i.e., consolidating new understandings) may help to overcome obstacles to change those defensive routines create. According to the results, knowledge structures involving the seeking out of alternative

perspectives, potentially provided by air passengers and other stakeholders, was of great importance when developing new ways of responding to pandemic-related flight regulations. Therefore, knowledge structures involving listening to other stakeholders and paying attention to the environment may facilitate the questioning of the validity and value of existing knowledge structures and routines. It is appropriate to note that extant research has indicated that new situations can potentially provide challenges that stimulate individuals to change beliefs and assumptions (Kitahara et al., 2011; Reese, 2017; Wang, Ahmed, & Rafiq, 2008b). Indeed, it may well be appropriate to utilize such new restrictions promoted by the pandemic as a way of actively developing knowledge structures that involve challenging existing ways of acting.

Pandemic-related flight regulations that actively involve leaving the comfort zone and helping airport staff learn from unfamiliar situations may help them to shed misconceptions, dispel misunderstandings and stereotypes, reveal distinctions and diversity, and generate confidence and trust. In this vein, the extant research provides numerous contributions relating to exchanging and evaluating attitudes and beliefs within a team, as well as utilizing the updated knowledge and knowledge structures gained by the team and others to guide future action (Becker, 2008; Cegarra-Navarro et al., 2014; Ewusi-Mensah & Przasnyski, 1995). Clearly a supportive environment must be created where challenging questions can be asked, assumptions surfaced, and more appropriate solutions supported. Given that such questioning can be unsettling both individually and collectively, trust is a key prerequisite for creating and responding to such environments (Bradley, Postlethwaite, Klotz, Hamdani, & Brown, 2012).

In relation to unlearning, it should be noted that given the requirements to radically change the environment to respond to the pandemic, new safety regulations provide a stimulus to create an unlearning context and thus take actions to indirectly overcome ODRs. Aligning new available resources (e.g., pandemic-related flight regulations) with organizational goals provides opportunities for encouraging the adoption of new or revised routines by airport staff. In the same way, dialogue among airport departments must constantly be stimulated to ensure resolution between the old approaches or routines and the new ones in the case of new understandings whose effectiveness has been tested and proven by airport staff. However, a reactive behaviour on the part of airport staff can harm their ability and motivation to spread new practices and cooperate with travelers, which will eventually affect the amount of knowledge hiding perceived by travelers. One solution, when this type of antisocial behaviour occurs, could be to rotate heads of departments. In this vein, the literature argues that as a result of replacing or transferring specific top managers, organizations can discard or revise obsolete artifacts and embrace new understandings (Cegarra-Navarro & Sánchez-Polo, 2008; Ransbotham & Kane, 2011; Starbuck, 1996).

5. Conclusions

This study suggests that the presence of an unlearning context allows airport staff to respond appropriately to environmental threats and to create a positive atmosphere in addressing them Using quantitative methods, this study has contrasted the relationships shown in Fig. 1. It should be noted that faulty defensive reasoning arises as a result of both internal and external environmental threats. This means that there are other factors outside the new airport pandemic regulations that could trigger ODRs. For example, a few years ago when a Spanish team (e.g., Real Madrid, Barcelona, etc.) played a foreign team (e.g., Liverpool, PSG, etc.) Spaniards would support the Spanish team over the foreign team regardless of the Spanish team they generally supported. Hence, although it is unimaginable today, the football fans of Barcelona used to cheer the Real Madrid soccer team and vice versa. Although Spanish team rivalry is normal and can even be healthy for the competition, political developments during the last twenty years have created a

strained environment where the most important thing for Spanish fans is that the Spanish teams, they oppose lose so in this situation a Real Madrid fan would support the foreign team if it was playing Barcelona! This could also be an example of how society in general embraces defensive routines. Therefore, as Xiong, Chang, Scuotto, Shi, & Paoloni (2019) pointed out, future studies could look at the impact of society on faulty defensive reasoning in the longer term.

It should also be recalled that although this study has used the date of the last flight as a control variable, data was collected in a unique period and only for a short time. The results of this study can therefore only be generalized to a limited extent and are not generally representative. Therefore, the generalization of the findings may be limited as this study focused on a particular moment in time. It would therefore be valuable for future research to explore how results differ across different scenarios and in different times. Further limitations result from the selection of travelers. Although they were chosen because they were already flying during the pandemic and suffering from restrictions on (inter) national travel, it cannot be determined whether different findings would have been obtained from a different sample. Therefore, future contributions could also investigate interorganizational routines that facilitate unlearning involving different agents such as airport staff and cabin crew. Moreover, ICTs, which are relevant for learning, could be examined more intensively for their effectiveness in fostering unlearning and creating an unlearning environment. Finally, there appears to be a need for research on the question to what extent airport staff can benefit from the concerns and complaints of customers and what possibilities exist to facilitate the systematic exchange of best practices.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Questionnaire items

Intentional Unlearning:
UL1: The Covid-19 measures have improved the way airport staff respond to special requests (e.g., providing additional staff members to assist people with disabilities).
UL2: Covid-19 measures have helped airport staff develop/adapt procedures to streamline the passengers' experience.
UL3: The airport has incorporated innovative changes in passenger service (e.g., they are easier to use, require less effort, or are more intuitive).
UL4: The airport has provided up-to-date and accurate information (e.g., arrival/departure/delays/ gate information).
UL5: The airport staff attempt to work with travellers and to solve problems together (e.g., restrictions you were unaware of when you booked your flight).
Source: Adapted from (Cegarra-Navarro & Wensley, 2019)
Defensive reasoning:
DR1: The airport has made changes to security-procedures, as compared to pre Covid-19 (*),
DR2: The airport has made changes to boarding procedures, as compared to pre Covid-19 (*)
DR3: The airport has made changes to check-in procedures as compared to pre COVID (*).
DR4: The airport has only changed the way they do things due to Covid-19 health and safety procedures (*).
Source: Adapted from (Yang et al., 2018)
Knowledge hiding:
KH1: Airport staff provided help in a timely fashion whenever I have asked for it (*)
KH2: Airport staff provided information, in a timely fashion, whenever I have asked for it (*)
KH3: Asking for help from airport staff resulted in an unnecessary delay.
KH4: I was provided different information than the information I requested.
Source: Adapted from (Connelly et al., 2012)

(*) Data should be read in reverse way.

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