

# A knowledge hiding approach to cope with COVID-19: A Comparison between Spain and China

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**Abstract**— Although it is not clear what positive and negative effects knowledge hiding may have on citizens, some Governments have tried to address the crisis caused by COVID-19 through hiding or distorting information available to citizens. This study suggests that the presence of realized absorptive capacity (RACAP) allows citizens to stop the spreading of fake news about COVID 19. The paper focuses on RACAP as a method to counteract the potential negative effects of knowledge hiding and thus increase citizen engagement. To do so, this study analyses data collected from 251 citizens of two countries: Spain and China. Results provides evidence that while Spaniards have the feeling that a lot of information has been hidden from them, Chinese citizens are ultimately much more committed to taking appropriate COVID 19 measures. Despite these differences, in both samples RACAP help to ensure compliance with new legislation and COVID-19-related restrictions.

**Keywords**— Hiding knowledge, COVID-19; Citizen Engagement, Realized Absorptive Capacity.

## I. INTRODUCTION

Perhaps motivated by the Spain's lack of anticipation with regard to COVID-19 [1], the Spanish Prime Minister (PM) has tried to hide his missteps by attacking other European partners for not wanting to pay for the coronavirus [2]. So far, they have not assumed any responsibility or identified the individuals responsible for mistakes such as the purchase of 640,000 inadequate coronavirus test kits [3].

The possibility of bad reactions, inappropriate responses or fake news against the mismanagement of the Spanish Government seem to justify its knowledge hiding approach to cope with COVID-19- defined as an intentional attempt to conceal or withhold knowledge that others have requested [4]. In this front, both disinformation (i.e. intentionally deceptive information) and misinformation (i.e. non-intentionally deceptive information) emerge as another pandemic that devastates the world, simultaneously challenging knowledge and trust [5], and like COVID-19, spreads ten times more than right information. This is particularly true in Spain where disinformation and fake news stories have proliferated since the start of the COVID-19 pandemic. Nevertheless, as [6] urge, in most cases, “the level of user interaction with

deceptive and misleading content remains high in social media”, giving way to increased distrust in authorities and institutions.

In Spain, the only appropriate way to deal with COVID-19 outbreak has been flattening the curve. Flattening the curve refers to self-isolation measures that keep the daily number of disease cases at a manageable level for medical care [7]. Although isolation may mean an effective precautionary measure to protect citizens from contracting COVID-19 [8], it also means engagement with the Government measures to learn how to protect ourselves from being infected or infect other people [9]. Engagement not only guides the actions of citizens but also their thoughts [10]. For example, while it provides the framework of reference for following rules and procedures, it also provides the basic understandings for dealing with information disorders. As engagement helps citizens to increase a sense of responsibility to the common values and ensures that one be aware of how his(her) own behaviour can affect the behaviour of others [11], it may be hindered by the presence of fake news and other information disorders.

Since RACAP involves transformation and exploitation of external knowledge [12], this capacity bears a noticeable resemblance to the concept of “self-insolation”. In the same way, self-insolation helps stop COVID-19 spreading, RACAP may prevent people from spreading counter-knowledge which relies on fake news, hoaxes or malicious lies [13]. This is also indicative of [14] work, that is acquiring necessary cognitive skills and an awareness of current events that make an informed deliberation on multifaceted issues. This being the case, the study suggests that the presence of “RACAP” allows citizens to commit themselves to discern right information from fake news and other information disorders, which in turn potentially has the benefit of allowing citizens to follow the right COVID-19 protocols and thus overcome COVID-19. The purpose of this study is to learn from mistakes and assist decision makers in overcoming the lack of transparency by identifying the alternative uses of knowledge hiding. We wanted to know exactly what a lack of transparency was observed among Spanish citizens and could either demotivate

or motivate them, causing them to engage less with the Government measures but more with their own neighbours.

## II. CONCEPTUAL FRAMEWORK

National cultures are among those environmental forces that have a greatest influence on national, socio-economic responses and decision making, particularly for budgeting practices [15]. Defined by [16] as “the collective programming of mind acquired by growing up in a particular country”, national cultures are shaped by forces such as religion, history, language and wars, which indoctrinate the population at an early age [17]. Within an organisation – argue [18], a national culture influences what is perceived by the organisation as useful, important – and often valid, knowledge.

Despite the cultural and social differences between China and Spain, both countries have implemented similar measures to prevent wrong perceptions of the government's COVID-19 recovery strategy at home. It is well known that up until its moving into recovery stage China has focused on perceptions of the government at home, spending less efforts in maintaining its international reputation [19]. In doing so, special attention has been given by the Chinese government to efforts to broadcast “real” news sourced from government agencies and state-owned media. Facebook and other social media platforms have been banned or subjected to considerable surveillance in mainland China (e.g. Twitter is only accessible through a government-approved virtual private network).

Although all of the above censorship measures were unknown in Spain up until the 2020 pandemic, due to the possibility of negative reactions, inappropriate responses or spread of fake news against the mismanagement of the Spanish government, such measures have become very popular among Spaniards under a state of alarm that started in mid-March 2020 [1]. We have seen how the Spanish Prime Minister answered only pre-filtered media questions in press conferences, while some media outlets which are critical of the Government, such as El Mundo, ABC or Libertad Digital, have been subjected to considerable surveillance and coercion in a bid to avoid half-truths being disseminated.

Under the above surveillance measures to cope with the COVID-19 outbreak, it seems reasonable to think that Spain and China have shared the same censorship measures to stop the spread of false and fake news. However, the results of these measures may have been different depending on previous familiarity with surveillance measures and the resistance of citizens to embrace them. For example, in Spain the hoarding of essential information helped to initiate the propagation of the virus spread because thousands march in Spain on women's day despite coronavirus fears [3].

As there is currently no vaccine or specific medication to treat COVID-19, and because testing is so limited in Spain, the only way to flatten the curve has been through self-isolation, which has undoubtedly been favoured not only by the greater awareness and predisposition to engagement shown by citizens but also by the legislative and regulatory initiatives implemented by the Spain's Government (e.g. suspension of the right to travel, banning cycling or other outdoor sports

during crisis). Being concerned that an excessively restrictive or unwelcoming framework constitutes support for fake news, the Government has tried to enhance its efficiency through a knowledge hiding strategy. This approach contradicted what is presumed to be “job one” for leaders in a crisis, namely transparency, as [20] clearly advanced.

It is the view of this study that knowledge hiding is not necessarily a bad thing, in Spain we have always being told that “out of sight, out of mind”. From this perspective, knowledge hiding could encourage people to be appropriately aligned with the Government measures by helping to reduce the proliferation of fake news. It could also avoid the fear of mistake or the feeling of sadness when thinking about the impact of COVID-19. This is what [21] called “useful ignorance”, for instance, there are people who would prefer not to receive information about the real COVID-19 death toll or sad stories about the problems doctors and nurses have in the front line. Likewise, when studying the multifold harnessing of ignorance as a resource, [22] concludes that “the cultivation of strategic unknowns remains a resource – perhaps the greatest resource – for those in a position of power and those subject to it” (p. 1).

Although the strategy of hiding knowledge could be positive, it does not remain free of criticism. For example, if the Government refuses to indicate negative results of its actions, citizens may incorrectly diagnose problems and, as a result, make inappropriate and potentially damaging decisions [23], [24]. In addition, if the Government distorts information in a manner which is not in the common interest, citizens may fail to recognize new threats and fail to adapt to confinement [25], [26]. Hiding knowledge is also among other outcomes, likely to make citizens (especially uneducated or ingenuous people) more prone to confuse fakes with real or reasonably plausible facts [27] as they essentially involve distortions to the information available to them.

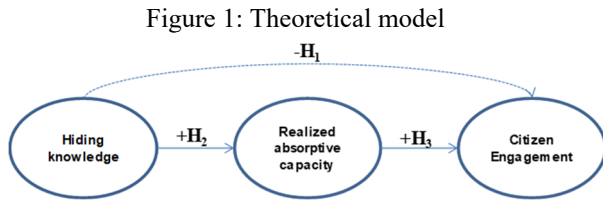
It is clear from the aforesaid facts that although the knowledge hiding approach have some benefits can also provoke doubts about the efficacy and appropriateness of government measures, increasing the sensation of sadness, disappointment, or even physical sensations of being let down when the Government fails to meet their expectations [27] or when it needs to ask for help related to make further sacrifices [28]. By taking a system-wide perspective of knowledge it can be argued that a possible solution for the Government to achieve the best results from this approach could come from citizen engagement [29]. Citizen engagement may be defined as individual and collective forms of action that are designed to identify and address matters of public concern [30]. Another way of describing this concept is the sense of personal responsibility individuals should feel to uphold their obligations as part of any community alongside being tuned in to their group of reference (i.e. peers with similar values, goals, contexts, etc.) [32].

Drawing on studies that refer to citizen engagement as people participation in most of the Government decisions [29], the conclusions could be that ‘citizen engagement’ allows an effective response of citizens to the changing situations. For example, citizen engagement may help to follow emergency

protocols without complaining and arguing either that they are not needed, or they are absurd measures [33], which in turn facilitates the prompt correction of misunderstandings or wrong assumptions derived from the knowledge hiding approach [25], [34]. In this sense, [35] demonstrated that less knowledge may be conducive to more power (i.e. for decision-makers), uninformed or less informed individuals proving to be vital for the achievement of democratic and civic consensus.

Since mis- and/ or disinformation are the last thing citizens need at this challenging time, victory in this fight can be achieved only through a balance between the positive and negative effects of the knowledge hiding approach. In doing so, RACAP might be considered as an individual's capacity to filter and refine external information that facilitate using existing knowledge for the benefit of society, which involves new interpretations of existing, adding new, and deleting pieces of counter-knowledge [36]. From this perspective, RACAP represents not only the vehicle through which embedded information collected through social media can itself be used, but it may also represent the result of filtering unverified information and updating the missing information.

Figure 1 shows our model. The upper path of our model represents the direct reaction of hiding knowledge on citizen engagement, while the lower branch captures the view of RACAP as a solution to the existing information gaps.



### III. METHOD

#### A. Data collection

The aim of the multi-group analysis was to confirm whether the relationship between hiding knowledge, realised absorptive capacity and citizen engagement would vary across two samples. In doing so, convenience sampling was used, participation invitations being distributed in the second week of April 2020 to the distribution list of two universities, one located in Spain and the other in China. The list included knowledge workers (e.g. teachers, students, grant holders and researchers and administrative staff). Over 1000 citizens were contacted and had 260 finally filled in the questionnaire by the beginning of May 2020 (155 from Spain and 105 from China). The database was then filtered on purpose to control the adequacy of the sample. Only Spanish or Chinese residents were kept for further analysis. After filtering the collected data, 251 responses finally resulted (151 from Spain and 100 from China). In terms of the sample, the majority of respondents were male (55.8 %) and the average age of citizens who participated in this study was 34.48 years. To minimise the data bias, a comparison of gender differences (1= male and 2= female) in terms of hiding knowledge, RACAP and citizen engagement was performed, the independent sample t-test revealed no significant difference between the two groups ( $p = 0.651$ ,  $p = 0.747$ , and  $p = 0.169$

respectively). In such conditions, non-response bias was not an issue in this study [37].

#### B. Measures

All constructs were self-reported and operationalised with a rating scale from 1 = "high disagreement" to 5 "high agreement" (see Table 1 for a list of items). Knowledge hiding was assessed with a 4-item scale developed by [4]. The items asked participants to think about how the government has managed the COVID-19 crisis. Four items measured RACAP and assessed the extent to which citizens were able to facilitate recognition of information disorders and consequences of fake news for other citizens [12]. The existence of citizen engagement consisted of 4 items from a scale designed by [29], these items were interwoven with issues related to how often citizens follow procedures and attend training tutorials on COVID-19 offered by the from the government and the civil society.

The proposed hypotheses were tested simultaneously using SmartPLS 3.2.9 [38]. As shown in Table 1, the fit index of SRMR and all discrepancies suggest a good fit for the measurement model [39]. All constructs were specified as composite reflective constructs (mode A) given that there is a high level of correlation between indicators [40]. The results provided in Table 2 show the validity of the composite constructs. All the variables attain discriminant validity, since all HTMT are below the value of 0.90 [41].

Table 1: Construct summary, confirmatory factor analysis and scale reliability

Construct	VIF	Loading	
<b>Hiding knowledge</b>			
EHK1: Agreed to help citizens take charge of their own health but never really intended to.	1.916	0.858***	AVE=0.694
EHK2: Agreed to help citizens but instead gave them information different from what they wanted.	2.353	0.869***	SCR=0.900
EHK3: Told citizens that it would help them out later but stalled as much as possible.	2.058	0.837***	HTMT=0.281
EHK4: Offered citizens some other information instead of what they really wanted.	1.779	0.763***	
<b>Realized Absorptive Capacity</b>			
RACAP1: I regularly consider the consequences of sharing fake news in terms of had influence on others.	1.580	0.781***	AVE=0.633
RACAP2: I regularly question the validity and value of newly acquired information.	1.574	0.859***	SCR=0.837
RACAP3: I quickly recognise the uselessness of fake news to solve real problems.	1.239	0.741***	HTMT=0.281
<b>Citizen engagement</b>			
CE1: I am following the recommendations I received from the government and civil society.	1.487	0.942***	AVE=0.587
CE2: I would be willing to participate in training tutorials about how to cope with COVID-19 isolation offered by the government and civil society.	1.646	0.803***	SCR=0.800
CE3: I am learning about how to use the self-service diagnosis of COVID-19 testing provided by the government.	1.341	0.481***	HTMT=0.181

Notes:  
 \*\*\*-0.01; \*\*-0.05  
 VIF=Variance Inflation Factor; AVE=Average Variance Extracted; SCR=Scale Composite Reliability; SCR; HTMT= Heterotrait-monomitt ratio of correlations; The fit statistics for the measurement model were: [SRMR= 0.082; SRMR<sub>max</sub>=0.083; d<sub>1,15</sub>=0.373; d<sub>1,15</sub> se=0.378; d<sub>1,15</sub>=0.147; d<sub>1,15</sub>=0.179]

#### C. Multi-Group Analysis China versus Spain

The system repeated ANOVA measures were used to prove the explanatory power of only one factor or independent variables. In our case, we used  $NC=1$  if the citizen lived in China and  $NC = 2$  if the citizen lived in Spain on a set of dependent variable metrics (i.e. *knowledge structures*=HK, RACAP and CE). As shown in Table 2, the multivariate contrast indicates that Wilks' Lambda is 0.647 with a significant level of  $p < 0.01$ . Consequently,  $NC$  has an explicative power on dependent variables (HK, RACAP and CE). Tests of effects within subjects show an  $F = 52.885$ .  $p < 0.01$ . Therefore, there are differences among the means of HK, RACAP and CE. A test of effects between subjects shows an  $F = 13.793$ .  $p < 0.01$ , which means that there are some differences depending on whether or not the end user was in China or in Spain.

**Table: 2**  
ANOVA nationality factor (individual variables)

Variable	Nationality (NC)	Mean	S.D	N	F	Partial Squared	Observed Power
HK	China	1.793	0.684	100	114.69***	0.315	1.000
	Spain	2.988	0.968	151			
	Total	2.512	1.045	251			
RACAP	China	3.867	0.755	100	8.298***	0.032	0.818
	Spain	4.143	0.739	151			
	Total	4.033	0.756	251			
CE	China	4.260	0.626	100	36.107***	0.127	1.000
	Spain	3.651	0.875	151			
	Total	3.894	0.839	251			
Wilks' Lambda= 0.649***					66.945	0.351	1.000
Tests of within-subjects effects NC: Knowledge Structures= 51.973***					81.855	0.247	1.000
Test of between-subjects effects NC: Knowledge Structures= 14.968***					20.609	0.076	0.995
Box's Ma= 31.489***					5.176		

Notes:  
S.D.= Standard deviation; \*\*\*p < 0.01

If we analyse the univariate tests, it can be observed that there are meaningful differences between the three dependent variables. These differences are particularly striking with regard to HK and CE.

To check the differences between the two countries under consideration, MGA was performed to measure whether the statistical differences existed between the two countries. This study also used a non-parametric PLSMGA, following [42]. PLS-MGA requires the confirmation of measurement invariance between two countries [43]. The findings revealed that none of the other differences were significant when comparing the effect of HK and RACAP on CE. The differences in the hypothesized relationships were found insignificant. In other words, the partial mediation effect of RACAP is quite similar in China and Spain.

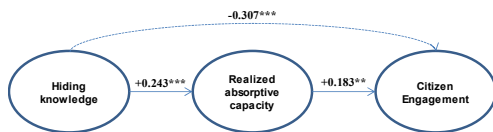
Table 3: Multi-Group Comparison (Hypothesis H1, H2, H3)

	Path Coefficients-diff (China - Spain)	P-Value new (China vs Spain)
RACAP→CE	0.192	0.095
HK→CE	0.203	0.235
HK→RACAP	-0.449	0.055

HD→ Hiding Knowledge; RACAP→ Realized Absorptive Capacity; CE→ Citizen Engagement

Figure 3 shows the results of the three-competing links, the findings provided support for H1, H2 and H3.

Figure 3: Structural equation model



Notes: \*\*\* <0.01; \*\* <0.05 (based on a Student t (9999) distribution with one tail). t(0.01, 4999) = 2.327; t(0.05, 9999) = 1.645

#### IV. CONCLUSION

Government representatives from around the world and from Spain in particular, have not understood that the fight against coronavirus is only possible from the perspective of self-criticism and with generosity and farsightedness. A knowledge hiding approach to cope with COVID-19 is a strategy which propaganda or misinformation does not serve to taking appropriate COVID 19 measures. That is why the management of the crisis has been slow, irresponsible and ineffective in many Western countries. Perhaps the most important lesson taken from this crisis has been the importance of developing explicit goals to which citizens

could engage with the government measures to flatten the curve. This study investigates how RACAP can mitigate the presence of hiding knowledge, along with exploring how it could foster citizen engagement.

In conclusion, since citizens can provide other citizens with the right information to stimulate knowledge sharing, they are primarily accountable for the degree in which information is verified and exchanged among their own contacts. This means that citizens must channel and ascertain unverified information before sharing with others in order to boost communication within their own network. This study, as others, could present limitations. We only focus on two institution, which makes it difficult to generalise results. Further studies are needed to extrapolate the results from the local to the global level. In this aim, this study opens a door to future research on this subject, particularly by expanding the number of participants, the country profiles and the nature of the crises studied. We particularly encourage similar studies which may focus on domains such as tourism and sustainability, where hiding knowledge and citizen engagement may play a major role in business and societal attitudes.

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