



## MAKING A CONNECTION BETWEEN COUNTER-KNOWLEDGE AND STUDENT ACHIEVEMENT GOAL ORIENTATIONS

CEGARRA NAVARRO, Juan Gabriel<sup>1</sup>

MARTÍNEZ CARO, Eva<sup>1</sup>

SOTO ACOSTA, Pedro<sup>2</sup>

<sup>1</sup> Universidad Politécnica de Cartagena (UPCT)

<sup>2</sup> Universidad de Murcia (UM)

### Abstract

In this paper, we have analyzed the relationships between an unlearning context and counter-knowledge using an empirical study of 210 students in order to identify whether the impact of unlearning on student achievement goal orientations (SGO) can be strength. The methodology used in this paper involves the construction and analysis of three structural models. Whereas in the first model counter-knowledge affects SGO directly and indirectly via the intentional unlearning, in the second model we test a fully mediated models in which counter-knowledge only affects SGO indirectly via the intentional unlearning. In the third model we test a nonmediated model in which counter-knowledge has only direct effects on the unlearning context and the SGO. The first model fitted better than the other alternative models, which means that counter-knowledge is an important trigger for unlearning as it contributes to a process of destabilization of the classroom environments.

**Keywords:** partial truths, gossip, rumours, student achievement goal orientations

### Resumen

En este trabajo, hemos analizado las relaciones entre el contexto de desaprendizaje y el *counter-knowledge* (chismes, cotilleos o rumores que afectan a los alumnos y profesores) mediante un estudio empírico de 210 estudiantes con el fin de identificar si el impacto de desaprender afecta al rendimiento de los estudiantes (SGO). La metodología utilizada en este trabajo consiste en la construcción y el análisis de tres modelos estructurales. Mientras que en el primer modelo el *counter-knowledge* afecta las SGO directa e indirectamente a través del desaprendizaje intencional, en el segundo modelo que probamos, el *counter-knowledge* sólo afecta indirectamente a través del desaprendizaje intencional a las SGO. En el tercer modelo, se prueba un modelo de no mediación en el que el *counter-knowledge* sólo tiene efectos directos sobre el desaprendizaje y las SGO. El primer modelo es estadísticamente mejor que los otros dos modelos alternativos, lo que significa que el *counter-knowledge* es un detonante importante para desaprender ya que contribuye a fomentar un proceso de desestabilización de los ambientes de las aulas.

**Palabras Claves:** chismes, cotilleos, rumores, alcances de los objetivos estudiantiles

## 1. Introduction

De la Fuente (2004) refers to academic goals as 'motives of an academic nature that students use for guiding their classroom behaviour. There are many factors other than instruction that can influence how students perform on their achievement goal orientations. For example, "counter-knowledge" in contrast to scientific knowledge, often masquerades as scientific knowledge but can be shown to be untrue in reference to known facts or shown to lack appropriate supporting evidence. Indeed, the very lack of supporting evidence may be used as evidence of the truth of a particular statement – for example the statement that a cure for cancer exists (Thompson, 2008). Rumours, gossip, unsupportable explanations and justifications, and inappropriate or false beliefs are just some of the examples that illustrate a classroom's students' capacity to create and share counter-knowledge (Harvey & Lusch, 1999). The creation of counter-knowledge occurs when an individual or students create inappropriate or false meaning for events or sequences of events.

However, there is another perspective from which counter-knowledge can be approached. It is obvious that all counter-knowledge generated via rumour, gossip, exaggeration and the acceptance of partial truths is not necessarily bad. For instance, with respect to this issue authors such as Baumeister et al. (2004) have argued that gossip is useful for conveyance of information to others, for social influence, and for entertainment. Such anecdotes may also reveal potentially useful about how our culture and society operate (Fox, 2001). Therefore, this counter-knowledge may lead individuals to develop a world-view that although it is at most partially true, it is also resourceful as it is an important form of social communication that serves to bond people together (Baumeister et al., 2004). In order to reduce the likelihood of insufficient counter-knowledge capture or uncritical counter-knowledge capture we would propose that it is necessary for educational associations and organizations to implement an active unlearning context to capture, examine and update the relevant counter-knowledge of its student(s).

## 2. Conceptual framework

### 2.1 Students' goal orientation (SGO)

The creation of each university's educational development plan starts with the collaborative development of a definition of student achievement. Goal orientation theory has defined achievement goals as the motivation which one engages in an achievement task (e.g. Maehr, 1989). Different factors can motivate people during goal pursuit, and we self-regulate our methods and processes during our goal pursuit. RFT proposes that motivational strength is enhanced when the manner in which people work toward a goal sustains their regulatory orientation (Spiegel et al., 2004). Under this framework, teachers who foster positive relationships with their students create classroom environments more conducive to learning and meet students' developmental, emotional and academic needs (Berry & O'Connor, 2009). In this regard, Higgins (1997) has advanced our understanding of the Regulatory Focus Theory by proposing the existence of two subsets of goal orientations (i.e. promotion focus and prevention focus), while students with promotion orientations strive to realize their ideals and are sensitive to the presence or absence of positive



outcomes, students with prevention focused strive to fulfill their duties and obligations and are sensitive to the presence or absence of negative outcomes (ELSamen, 2011). The goal orientation scale that will be examined in this research is adapted from ELSamen (2011). This can be justified since this scale is more related to student samples and has been used in marketing and consumer behavior literature to examine the impact of regulatory focus on adolescents' responses. Therefore, taking the foregoing into account and relating ELSamen's work (2011) to the work of Lockwood et al. (2002), we propose that those that possess a goal orientation are dominant in promotion and prevention, these two dimensions depict the importance of the individual's own ideals and obligations. Thus, in this paper the concept of student goal orientation has been defined as a student thinking about what other people expect of him/her (Higgins, 1997).

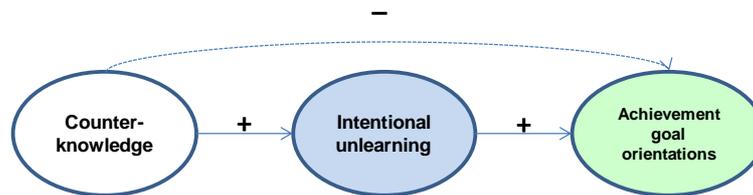
## **2.2 Counter-knowledge**

We live and work in a world where we do not have all the truth and we share rumours, beliefs and assumptions about what we think is the truth (Kurland & Pelled, 2000). This observation is supported by Chapman and Ferfolja (2001) when they assert that gossip, rumours and malicious lies proliferate in the learning process and people can be manipulated to learn some 'wrong' things. In this vein, Thompson defines counter-knowledge as 'misinformation packaged to look like fact' (2008: p.1). Thompson further proposes that counter-knowledge is based on gossip, rumours and malicious lies and may lead to the adoption of inappropriate or outdated assumption. This counter-knowledge potentially leads to a degradation of organizational knowledge (Fernandez & Sune, 2009). Counter-knowledge can be viewed as resulting in a natural deterioration or depreciation of knowledge shared among the students, usually with negative consequences for learning processes and academic goals. For example, when classroom members provide information that is derived from rumour or gossip they help to undermine the learning process by masquerading as a source of knowledge. Furthermore, students who tend to accept rumour and gossip may well develop an increased propensity to believe further rumours and gossip. For instance, students who engage in gossip begin to forget to a degree about why they are there in the classroom initially students lose concentration and they may decide to rely completely on informal information that cannot be tracked back to its original source. Over time they and their fellow students may come to rely more on informal information than on consulting the teachers directly. In the next section we discuss how the presence of an unlearning context may facilitate the identification and replacement of counter-knowledge.

## **3. Linking counter-knowledge with SGO though unlearning**

Figure 1 shows our model. The lower branch captures the view of counter-knowledge as a hindrance stressor. We assume that the negative influence of the counter-knowledge stressor on student goal orientation is mediated by the unlearning context. The upper path of our model represents the direct reaction of counter-knowledge on student goal orientation, which leads to reduced performance. Therefore, our model assumes that while counter-knowledge has a negative effect on student goal orientation, the unlearning context has a positive effect on student goal orientation.

Figure 1 Theoretical model



The above considerations lead us to argue that counter-knowledge is simultaneously a hindrance and a challenge stressor. On some occasions, counter-knowledge is an important trigger that contributes to a process of destabilization of the classroom environments. This process of destabilization and subsequent reconsolidation may be a means by which established memories (knowledge) may be updated or modified. It is appropriate to note that most prior organizational research has described unlearning as resulting from some form of destabilizations of old learning (e.g. Akgun et al., 2006; Lee & Sukoco, 2011). From this perspective, it would appear that the existence of an unlearning context provides support for the process of counteracting counter-knowledge when this proves necessary. These considerations lead us to frame the first hypothesis of our study:

*H1: Counter-knowledge has a negative effect on student orientation goals and the relationship is partially mediated by the existence of an unlearning context.*

The extent to which a positive climate is implemented indicates the intensity of efforts that are made toward the development of the classroom's unlearning context and its capacity for improving not only students' relationships with teachers, but also enhancing the relationships among students. Regarding this, Meyer et al. (2004) suggest that the individuals, who bond to their organization(classroom) emotionally, have higher work performance. As noted above, the unlearning context is not only a mechanism for forgetting old knowledge but is also the way that students are able to develop and make room for new knowledge. The unlearning context provides an environment that supports the unpacking of rumours, gossip, fear of the unknown and mental shortcuts and it is through such a context that students of a classroom are able to identify outdated knowledge structures (e.g. judgemental language and jargons) and by introduce new approaches resulting in greater social interaction with fellow students and extracurricular involvement (City et al., 2009). As Higgins (2002) noted, decision makers evaluate their decisions as better when they are made with suitable eagerness means and suitable vigilance means. Therefore, we propose the following hypothesis:

*H2: The existence of an unlearning context positively affects student goal orientation.*

## 4. Method

In order to test the above hypotheses, students belonging to a School of Business Management within a Spanish University with a capacity of 2200 places were considered. These surveys were conducted between April and May 2011 with 210 valid responses. Therefore, data analysis was based on 210 valid responses. The great majority of respondents were female (66.7 percent).

Churchill's (1979) approach to questionnaire development was used, combining scales from several other relevant empirical studies with new items to make an initial list of 20 items (3 measuring the examination of lens fitting, 3 measuring the existence of conditions facilitating the changing of individual habits, 3 measuring the framework for consolidating emergent understandings, 4 measuring the prevention orientation, 4 measuring the promotion orientation and 3 relating to counter-knowledge). In all cases responses were drawn from a 7-point Likert scale (1= high disagreement and 7= high agreement).

The counter-knowledge scale was constructed from a literature review and an expert panel in order to identify the correct items for this construct. Among the indicators of counter-knowledge, factors relating to the lack of congruity between the intended communication and its recipient (e.g. misunderstandings) are most often used (Thompson, 2008). We also adopted questions focusing on gossip which thrives on lies, exaggeration and partial truths (Chapman & Ferfolja, 2001).

The measures relating to the existence of an unlearning context consisted of nine items taken from a scale designed by Cegarra and Sanchez (2008). As described above, three dimensions form the unlearning context: the consolidation of emergent understandings; the examination of lens fitting; and the framework for changing individual habits. Consolidating the emergent understandings consisted of three items describing the way management faced up to change, actively introduced it into the company through projects, collaborated with other members of the organisation and recognised the value of new information or taking risks. To measure the examination of lens fitting, three items were used. These items recognise the support of policies, rules, reporting, structures and decision-making protocols that encourage the identification of problems, mistakes and new ways of doing things. Finally, we measured the framework for changing individual habits using three items. This scale focuses on employees' self-awareness of their own mistakes, ways of thinking and wrong behaviour that guides everyday attitudes.

To examine the student achievement goal orientations (SGO), we sought to measure the dimensions that have been defined (ELSamen, 2011). Student achievement goal orientation includes the prevention and promotion orientation. Four items measured prevention orientation and assessed the extent to which students were able to use vigilance means to attain prevention-relevant outcomes. In addition, four items tapped into the extent to which students were able to use eagerness means to attain promotion-relevant outcomes.

In order to obtain a robust evaluation of the quality of the twenty items (see Table 1), a confirmatory factor analysis (CFA) was achieved using the covariance matrix as input via the EQS 6.1 robust maximum likelihood method. The fit statistics for the CFA, which are summarised in Table 1, indicate a reasonable data fit. From an examination of the results shown in Table 1, we can state that all of the constructs are reliable. For all the measures, Bagozzi and Yi's composite reliability index and Fornell and Larcker's average variance extracted index are higher than the evaluation criteria of .7 for composite reliability and .5 for the average variance extracted.

Table 1 Construct summary, confirmatory factor analysis and scale reliability



Construct	Standardised loading	t-value	Reliability SCR <sup>a</sup> , AVE <sup>b</sup> )
<b>The framework for the examination of lens fitting</b>			
ELF <sub>1</sub> : Students are able to see mistakes from their colleagues	.66	11.02	AVE=.57
ELF <sub>2</sub> : Students are able to identify problems and new ways of doing things easily	.68	12.72	SCR=.80
ELF <sub>3</sub> : Students are able to listen to their teachers e.g. suggestions	.91	26.79	
<b>The framework for changing the individual habits</b>			
CIH <sub>1</sub> : New situations have helped students recognise unwanted attitudes	.95	46.54	AVE=.82
CIH <sub>2</sub> : Students recognise forms of reasoning or arriving to solutions as inadequate	.97	70.50	SCR=.93
CIH <sub>3</sub> : New situations have helped students identify improper behaviours	.78	15.02	
<b>The consolidation of emergent understandings</b>			
CEU <sub>1</sub> : Teachers seem to be open to new ideas and new ways of doing things	.91	31.56	AVE=.70
CEU <sub>2</sub> : Teachers adopt the suggestions of students in the form of new routines and processes	.84	22.19	SCR=.88
CEU <sub>3</sub> : Teachers have tried to initiate projects and introduce innovations	.76	16.15	
<b>Prevention Orientation</b>			
PO1: I frequently think about how I can prevent failures in my life	.78	20.64	AVE=.58
PO2: I often worry that I will fail to accomplish my academic goals	.81	16.83	SCR=.84
PO3: I often think about the person I am afraid I might become in the future	.86	23.81	
PO4: I often imagine myself experiencing bad things and fear what might happen to me	.55	10.93	
<b>Promotion Orientation</b>			
PO5: I typically focus on the success I hope to achieve in the future	.78	17.21	AVE=.51
PO6: In general, I am focused on achieving positive outcomes in my life	.58	8.64	SCR=.80
PO7: I often think about the person I would ideally like to be in the future	.81	19.58	
PO8: I frequently imagine how I will achieve my hopes and aspirations	.63	7.33	
<b>Counter knowledge</b>			
CK1: There is gossip that thrives on lies, exaggerations and partial truths	.73	13.72	AVE=.55
CK 2: There are malicious rumours which support mistrust	.80	17.39	SCR=.78
CK 3: There are malicious stories about staff that often lead to misunderstandings	.68	12.83	

Notes:

The fit statistics for the measurement model were: Satorra-Bentler  $\chi^2_{(155)} = 248.71$ ;  $\chi^2/d.f = 1.60$ ; GFI=0.91; CFI=0.98; IFI=0.98; RMSEA= 0.045.

<sup>a</sup> Scale Composite Reliability (SCR) of  $p_c = \sum \lambda_i^2 \text{var } \xi_i / [\sum \lambda_i^2 \text{var } \xi_i + \sum \theta_{ii}]$ .

<sup>b</sup> Average variance extracted (AVE) of  $p_c = \sum \lambda_i^2 \text{var } \xi_i / [\sum \lambda_i^2 \text{var } \xi_i + \sum \theta_{ii}]$ .

## 5. Results

Following the recommendations of Anderson and Gerbing (1988), we tested whether a more restricted model worsened the fit using sequential chi-squared difference tests (see Table 2). In our case, this is our partially and fully mediated models in which counter-knowledge affects the SGO directly and indirectly via the unlearning context. Next, we tested whether an even less restricted model worsened the fit. In our case, this is the non-mediated model in which counter-knowledge affects the unlearning context and the SGO only directly. Proceeding with the nested tests of our structural model, we examined the fit of our partially mediated model from Figure 1. Next, we tested the fit of the fully mediated model. Even though this model resulted in an acceptable fit, the incremental chi-squared statistic indicated that the fit worsened significantly in comparison to the partially mediated model. Furthermore, we wanted to exclude the possibility that counter-knowledge has only direct effects. Thus, we tested a model in which counter-knowledge has only direct effects on the unlearning context and the SGO. Even though this model resulted in an acceptable fit (see Table 2), a sequential chi-squared difference test also revealed a significant

impairment of fit in comparison with the partially mediated model,  $\Delta\chi^2_{(1)} = 72.43$ ,  $p < .01$ .

Table 2 Summary of goodness-of-fit indices

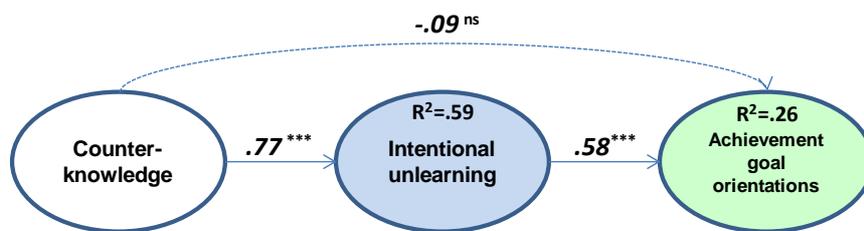
Model	$\chi^2$	df	CFI	GFI	RMSEA
Partially mediated model	265.89	160.00	0.94	0.94	0.044
Fully mediated model	271.59	161.00	0.93	0.93	0.045
Nonmediated model	338.32	161.00	0.89	0.90	0.062

Notes:

CFI, comparative fit index; GFI, goodness-of-fit index; RMSEA, the root mean square error of approximation.

Figure 2 shows the results of the three competing links. The first link (direct effect) examined the direct relationship between counter-knowledge and SGO, while the other two links examined the same relationship with 'the unlearning context' acting as a mediator. The results of the three links partially support H1 and strongly support H2.

Figure 2 Theoretical model



## 6. Discussion

The results show an insignificant relationship between counter-knowledge and SGO, which means that counter-knowledge, did not lead to reduced SGO. A possible explanation would be the fact that although teachers have some control over what is being said in their classrooms, they don't have time or resources to check all what is being said and done with counter-knowledge, which in turn could lead to think that most but not all counter-knowledge is channelled through the unlearning context. When that happens counter-knowledge that has not been channelled though the unlearning context does not necessarily signify a bad thing, this confirms as the position adopted by Baumeister et al. (2004) when they argue that some gossip is useful for conveyance of information to others, for social influence, and for entertainment.

On the other hand, our data revealed that the effect of counter-knowledge on SGO is partially mediated through the presence of an unlearning context, which means that counter-knowledge is an important trigger for unlearning as it contributes to a process of destabilization of the work environments (e.g. Akgun et al., 2006; Lee & Sukoco, 2011). A possible explanation for these findings may relate to the fact that though the unlearning context teachers have some control over counter-knowledge (i.e. what's being said). For example, teachers can choose to listen to gossip, they can choose to pass on gossip or they can choose to stop gossip (to some degree) in its tracks by correcting misinformation. In some way, at some point, teachers become

directly involved in the gossipers circle of 'news', and they can actually have some input into how counter-knowledge goes around from that point. Indeed, unlearning can be understood as a necessary step for managing the change of counter-knowledge when this proves necessary.

## 7. Conclusions

Goal orientation researchers posit the existence of several types of goals that students adopt in educational settings. Our data revealed that the effect of counter-knowledge on SGO is partially mediated through the presence of an unlearning context, which means that counter-knowledge is an important trigger for unlearning as it contributes to a process of destabilization of the classroom environments. These considerations imply that though the unlearning context teachers have some control over counter-knowledge (i.e. what's being said). From a practical point of view, for intentional unlearning to occur at a classroom level, replacing most but not all counter-knowledge must take place. The associations that we have established as a result of testing H1 and H2 lead us to advise university administrators to consider that counter-knowledge can be a source of new knowledge structures (e.g. superior capabilities) and not just a source of misunderstandings and misconceptions. Although counter-knowledge does not represent a valuable and important asset within itself, it may become valuable when it is used to develop new behaviours that lead to new knowledge structures that are beneficial to the classroom environment. We think that this is an important finding as not many university administrators encourage their teachers to test the validity of what is being said. In many cases, learnt rumours/stories are so organisationally inculcated that university administrators do not have any control over them.

## 8. References

- Akgun, A. E., Lynn, G. S., & Byrne, J. C. (2006). Antecedents and consequences of unlearning in new product development teams. *Journal of Product Innovation Management*, 23: 73-88.
- Anderson, J.C., & Gerbing, D. (1988). Structural Modelling in Practice: A Review and Recommended Two-Steps Approach. *Psychological Bulletin*, 103: 411-423.
- Baumeister, R.F., Zhang, L., & Vohs, K.D. (2004). Gossip as Cultural Learning. *Review of General Psychology*, 8(2), 111–121.
- Berry, D. & O'Connor, E. (2009). Teacher-child relationships and social skill development across middle childhood: A child-by-environment analysis of change. *Journal of Applied Developmental Psychology*, 30 (3).

- Cegarra, J.G. & Sanchez, M. (2008). Linking the individual forgetting context with customer capital from a seller's perspective. *Journal of the Operational Research Society*, 59(12), 1614-1623.
- Chapman, J.A., & Ferfolja, T. 2001. The acquisition of imperfect mental models and their use in hazardous situations. *Journal of Intellectual Capital*, 24, 398-409.
- Churchill, G.A. (1979). A paradigm for developing better measures of marketing constructs. *Journal of Marketing Research*, 16, 64-73.
- City, E.A., Elmore, R.F., Fiarman, S.E. Teitel, L. (2009). *Instructional Rounds in Education: A Network Approach to Improving Teaching and Learning*. Cambridge, MA; Harvard Education Press.
- De la Fuente, J. (2004). Recent perspectives in the study of motivation: the Theory of Goal Orientation. *Electronic Journal of Research in Educational Psychology*, 2(1), 35-62.
- ELSamen, A.A. (2011). Examining the Construct Validity of the Lockwood Goal Orientation Scale Using the General Hierarchical Model: An Exploratory Study. *Journal of Management Policy and Practice* vol. 12(4), 81-93.
- Fernandez, V., & Sune, A. (2009). Organizational forgetting and its causes: an empirical research, *Journal of Organizational Change Management*, 226, 620-634.
- Fox, K. (2001). 'Evolution, Alienation, and Gossip: The role of mobile telecommunications in the 21st century'. [Accessed 17 May 2013]
- Harvey, M.G. & Lusch, R.F. (1999). Balancing the intellectual capital books: intangible liabilities. *European Management Journal*, 17(1), 85-92.

- Higgins, E.T. (1997). Beyond pleasure and pain. *American Psychologist*, 55(12), 1280–1300.
- Higgins, E.T. (2000). Making a good decision: Value from fit. *American Psychologist*, 55(11), 1217–1230
- Kurland, N. & Pelled, L. (2000). Passing the word: Toward a model of gossip and power in the workplace. *The Academy of Management Review*, 25(2), 428-438.
- Lee, L., & Sukoco, B. (2011). Reflexivity, stress, and unlearning in the new product development team: the moderating effect of procedural justice. *R&D Management*, 41(4), 410 – 423.
- Lockwood, P., Jordan, C.H., & Kunda, Z. (2002). Motivation by positive or negative role models: Regulatory focus determines who will best inspire us. *Journal of Personality and Social Psychology*, 83, 854–864.
- Maehr, M. L. (1989). Thoughts about motivation. In C. Ames & R. Ames (Eds.), *Research on motivation in education* (Vol. 3). New York: Academic Press.
- Meyer J., Becker, T. & Vandenberghe, C. (2004). Employee Commitment and Motivation: A conceptual analysis and Integrative Model. *Journal of Applied Psychology*, 89(6), 991-1007.
- Spiegel S, Grant-Pillow H, Higgins ET (2004). How regulatory fit enhances motivational strength during goal pursuit. *European Journal of Social Psychology*, 34(1), 39–54.
- Thompson, D. (2008). *Counter-knowledge*, Atlantic Books, London.