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# **Sustainable learning in organizations: a psychosocial ICT-supported process**

*Gianvito D'Aprile\*, Fedela Feldia Loperfido\*\*, Cosimo Talò\*\*\**

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## **Abstract**

Within Community of Practice theory, this study aimed at validating a psychosocial model about sustainable learning as a process of participation in socially responsible practices of organizations, fostered by ICTs. 345 workers, employers and employees of Apulian Small and Medium Enterprises, were involved in our study. Two main groups were considered: workers (N=130) who participated in DI.CO.TE., a project focused on building a sustainable digital network among SMEs (ICT group), and they (N=215) who were not part of this project (no ICT group). Both groups filled in a questionnaire, including several scales of Corporate Social Responsibility, organizational sense of community and commitment. Quantitative analyses demonstrated that the participation of workers in the sustainable practices fostered their organizational sense of community, which, in turn, influenced their

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commitment as a salient dimension of self-definition. Furthermore, ICTs empowered the sustainable learning process.

**Keywords:** sustainable learning, community of practice, corporate social responsibility, ICT mediation, quantitative analyses

## Introduction

The actual both economic and social crisis asks people and enterprises to reorganize not just their production aims, but even the whole job processes involving interactions, job tools, and, the last but not the least, the way they interact with environment. Since several years, the political arena and the ethic organizations are discussing about the concept of sustainability, useful to redefine the societal, social and organizational system completely.

According to Wals and Jickling (2002), the term sustainability has gained several meanings especially after Agenda 21, signed during the Rio de Janeiro United Nations Conference in 1992. Such a political agenda defined the World necessity of favoring sustainable programs in all the life issues, including cultural identities, society-nature relationships, development and human rights. In this study, we focus on companies, wherein learning sustainability could be a strategic lever toward sustainable development, able to sustain their competitive and long-term advantage (Hansmann, 2010).

Although sustainable learning processes have obtained a relevant role in orienting organizations to behave socially responsible and sustainably, scholars have especially studied how companies may better become sustainable learning organizations, not just how sustainable learning may evolve and foster in the organizations.

Adopting a psychosocial perspective, the present study aims to fill this gap by providing a new sustainable learning model applied to the organizations.

The paper contains three main sections. In the first section, a conceptual framework is provided as the structural foundation of the study. In the second section, a sustainable learning model, applied to organizational contexts is developed. Finally, in the last section, the main theoretical and practical implications of the research are discussed.

## **Theoretical framework**

To enhance economic growth without affecting environment and communities, enterprises have invited to behave sustainably, so fostering a deep process of learning sustainability and corporate social responsibility (Velazquez *et al.*, 2011).

Several questions come up about these topics, concerning what the characteristics of sustainable learning are, how organizations and, in turn, groups and individuals may promote it, and what tools could be used for learning sustainability at an organizational level of analysis.

Let us begin from the very first question concerning the concept of sustainability and its content. The construct of Corporate Social Responsibility (CSR) can help understanding the phenomenon of sustainability, since it involves the conduction of business by following the so-called Triple Bottom Line principle (Elkington, 1997). Indeed, Wempe and Kaptein (2002) suggest that companies have to manage the economic (Profit), the social (People), and the environmental (Planet) dimensions. This system of organizational aspects is strictly linked to social responsibility as an empirical basis of sustainability.

Thus, socially responsible companies are involved in the pursuit of these three types of results while considering the expectations of their stakeholders. That is, CSR represents a system of context-specific corporate behaviors that affects the expectations of stakeholders in a sustainable manner (Aguinis, 2011; Wood, 2010).

The further question we point out is about the way sustainability may be promoted by organizations. Paraphrasing Wals and Jickling (2002), sustainability is the possibility of the Self-expression through the active and interactional participation in a community. For this reason, we claim that an existing psychosocial model can help both the interpretation of the sustainability level in organizations and the planning of actions to increase it.

Indeed, the community of practice (Wenger, 1998) model suggests that when organizations have a joint enterprise and a domain of knowledge, that is a topic of interest, they generate shared practices and a common ground that inspire members to support their organizational commitment reflecting self-definitional aspect of organizational membership (Mowday *et al.*, 1982).

Accordingly, when we refer to the community of practices, three key-aspects have to be kept in mind: the practice, the participation, and the identity formation. Indeed, while the domain represents the general idea and field inspiring all the community, at the same time, the practice is the specific focus, around which the community develops, acts, and creates a shared knowledge. Thus, participating in the community means to interiorize its culture in terms of domain of interests and a shared repertoire of meanings and practices, and to contribute to the realization of the joint enterprise.

However, such a participation is not just oriented toward the implementation of a goal, but involves the construction of identity processes (Lave & Wenger, 1991). When a member of a community moves from the periphery to the center, he/she learns how contributing to the practices of that community. At the same time, through the appropriation of the practices, the member creates a shared identity. That is to say, sustainability regards the three dimensions of profit, people, and planet by considering the social aspects of these three dimensions. However, at the same time, the individual is wholly involved in this process by constructing his/her identity.

The community of practices theory gives a bridge to connect both social aspects and individual ones through the learning processes, since participation is the corner stone to be a central member in a specific community, which is connected with a broader context asking more and more for sustainability. Thus, let us imagine the community of practice – for example, any single enterprise analyzed in our study – as a knot of a network composed by several communities directly or indirectly interacting with one another and representing reciprocal stakeholders. So within each community, individuals interactively build their identity paths, learn to be sustainable and contribute to the shared definition of a system of practices aimed at implementing sustainability (Bulkeley, 2006).

Concisely, this is what we mean for sustainable learning: the chance of participating in a community of practices focused on sustainability in terms of both agency of corporate socially responsible practices and democratic participation, involving simultaneously organizations and individual identity in achieving and facilitating sustainable development.



What makes the learning process a sustainable one is the nature of the practices, which are oriented to the social, economic and environmental dimensions, and, at the same time, support the increasing expression of the self-moving from the periphery to the center of the community.

The final point we want to analyze is about the tools needed to sustain the formation of what we call 'sustainable communities of practices'. By keeping in mind the metaphor of the network, we want to especially explore the relevance of ICT in maintaining such a network. On the understanding that each community of practices defines its own tools belonging to a shared repertoire necessary to join the enterprise, we do claim that ICT tools can help both the sharing and construction of the community domain (Engeström, 2007).

As scholars sustain, ICT can play an important role in empowering changes in learners representing a meditational tool that can support collaboration and sharing (Cole, 1996; Mukkonen *at al.*, 2005). Indeed, the huge diffusion of digital communication has promoted the proliferation of community-based networks that go beyond the concept of local proximity, and allow enterprises to build various kinds of relationships (Willson, 2006).

Therefore, ICTs not only increased the number of relationships, but also changed the way the relationships are shaped, supporting sense of community and redefining self-concept simultaneously (Wellman & Haythornthwaite, 2002).

Briefly, within Community of Practice conceptualizations, corporate sustainable learning may be conceptualized as a social process stimulating the participation of the organizations to corporate socially responsible practices, thus sustaining workers' sense of community and the construction of their self-concept as committed identity. In addition, such a sustainable learning process is deeply supported by ICT tools.

## **Research**

### ***Aims and hypotheses***

Consistent with these theoretical assumptions, we claimed that CSR practices, workers' organizational sense of community as well as

commitment could be considered the pillars of sustainable learning processes in the organizational contexts.

Specifically, we hypothesized that:

H<sub>1</sub>: The influence of CSR on organizational commitment was mediated by sense of community to the organization. Especially, we put forward that CSR affected positively organizational sense of community, which positively influenced in turn the organizational commitment.

H<sub>2</sub>: Business professionals used ICTs obtained higher scores in all sustainable process's variables analyzed than they did not use them.

H<sub>3</sub>: The linkages among the variables of the model may be higher for workers using ICTs than they did not use them.

## Method

### *Participants and research contexts*

To test the proposed connection of CSR-organizational sense of community-organizational commitment, a survey was conducted on a sample of workers employed in Italian Southern SMEs.

Participants were 345 (58.3% female) between employers (100, 29%) and employees (245, 71%), members of small (11.3%) and medium-sized (87.8%) Apulian enterprises, aged between 19 and 65 years (Mean = 33.81, SD = 9.26). Most of them were high school graduates (60%) with a mean working age of 9.9 years (SD = 9.36).

They were members of Apulian SMEs, which were production and utilities companies carrying out different types of business. Some of them were producing goods – such as, software for business management, furniture for interior design, waste disposal, building construction, and so on – (11.3%); the others were providing services – such as, organizing theater events and consulting for communication and environment management, telecommunication, and so on (87.8%).

More specifically, some of the participants (37.7%) were members of a regional Consortium named Costellazione Apulia ([www.costellazioneapulia.net](http://www.costellazioneapulia.net)), which is still exploring innovative and collaborative organizational practices as a way of both improving their own business and preserving the quality of both the physical and cultural

environment. The Consortium was involved in a regional project called DIscourse in COmmunity of practices through TEchnologies (DI.CO.TE.) ([www.dicote.it](http://www.dicote.it)) funded by Regione Puglia, which aimed at empowering the companies, members of the Consortium, to behave sustainably through the construction of a network of strong community- and identity-based members.

### ***Procedure, measures and analyses***

The workers were involved in the study through an online procedure. Specifically, contact was made through a series of e-mails to industry associations or companies, asking, for each enterprise, a spontaneous participation of an employer and at least two employees. Thus, an employer and at least two employees as members of the same enterprise were included in the sample. No personal identifying information was requested from the respondents to guarantee their anonymity.

The following measures were used:

a. *Corporate Social Responsibility (CSR)*. The Psychosocial Corporate Social Responsibility (PCSR) scale developed by D'Aprile and Talò (2013) was adopted. The PCSR scale aimed at measuring three factors: Affect, Behavior, and Cognition of CSR. In this study the 8-item Behavior CSR subscale was used as a measure of sustainable practices. It was rated on a 5-point Likert scale from 'strongly agree' to 'strongly disagree'.

b. *Community Organization Sense of Community (COSOC)*. The measure was an Italian adaptation of 8-item scale by Peterson *et al.* (2008). The items were hypothesized as representing four dimensions of perceived sense of community at work: (1) relationship to the organization; (2) organization as mediator; (3) influence of the organization; and (4) bond to the community. Respondents answered items of the COSOC-R using a 5-point format from 'strongly agree' to 'strongly disagree'.

c. *Organizational Commitment (OC)*. Organizational commitment was measured with a 9-item version of Organizational Commitment Questionnaire (OCQ) (Mowday *et al.*, 1982). The items were hypothesized to represent emotional attachment, identification with, and involvement in the organization as salient dimensions of self-

concept. Responses were obtained on a 5-point Likert scale from 'strongly agree' to 'strongly disagree'.

d. *Socio demographics*. Participants were asked to provide demographic information specifying age and gender (0 = F, 1 = M), level of education, employment status (1 = employer; 2 = employee), working age, and the type (1 = production; 2 = service; 3 = other) and size (1 = small, 2 = medium) of the company.

Descriptive statistics, Confirmatory Factor Analysis (CFA), reliability analysis, ANOVA, and correlation analysis methods were used to analyze the data collected.

## Results

All the used measures showed good reliability (Cronbach's Alpha: COSOC = .80, OC = .86, PCSR beh = .80) and the indices of skewness and kurtosis did not indicate a significant distortion from the normal distribution (Muthén & Kaplan, 1985). Furthermore, the Portoso's index (W) was equal to .24 (Portoso, 2004). The Portoso's index and the analyses of skewness and kurtosis lead us to choose the normal distribution that stores a constant distance among the quantified modalities.

The Confirmatory Factor Analysis (CFA) through maximum likelihood estimation confirmed the theoretical structure of each scale used in the study, which accounted for four factors of first order and one general factor of second order for COSOC, three factors of first order and one general factor of second order for OC and a factor of first order for Behavioral CSR.

Table 1 shows the fit indices of the CFA for each of the three scales used.

**Table 1.** Confirmatory factor analysis fit indices for the COSOC, OC, and CSR.

	$\chi^2$ Df	F	p	CFI	TLI	RMSEA [90% C.I.]	p
COSOC	16	31.51	.01	.98	.97	.05 [.24 .08]	.39
OC	21	52.84	.00	.97	.96	.06 [.04 .08]	.11
beh PCSR	20	124.73	.00	.92	.96	.06 [.50 .07]	.05

Correlational analyses of the variables (Table 2) showed that age was positively correlated with COSOC ( $r = .18$ ), OC ( $r = .21$ ), and behavioral PCSR ( $r = .29$ ). Each of psychosocial variables showed significant correlation indices:  $r = .68$  between COSOC and OC;  $r = .59$  between COSOC and PCSR;  $r = .61$  between OC and PCSR.

**Table 2.** Correlations among measures of COSOC, OC, PCSR and demographics.

	Age	Wor.age	Size ent.	Occupat.	COSOC	OC	beh PCSR
Gender	.19**	.25**	-.19**	-.27**	-.03	-.01	-.02
Age		.75**	-.22**	-.53**	.18**	.21**	.29**
Working age			-.28**	-.59**	.23**	.22**	.29**
Size of enterprise				.30**	-.17**	-.14**	-.16**
Occupation					-.26**	-.36**	-.35**
COSOC						.68**	.59**
OC							.61**
M	33.81	9.91	1.39	1.71	29.26	34.86	65.32
SD	9.26	9.36	.49	.45	4.25	5.68	8.13

\*\*  $p < .01$ ; \*  $p < .05$

A series of ANOVA was used to analyze the differences of the three psychosocial variables regarding to the demographics of the experimental design (Table 3).

While there was no difference with regard to the gender, the three variables showed a significant difference for the type of employment (higher scores for employers than employees) and of business (higher scores for production companies than service companies). Regarding the size of the company, differences were found only for COSOC and OC. In both cases, small companies showed high scores compared to medium-sized companies.

Much more important is the information regarding participation in DI.CO.TE. project. The data confirmed the hypothesis ( $H_2$ ): DI.CO.TE. participants showed significantly higher scores for PCSR, COSOC and OC than non-participants.

**Table 3.** Differences of psychosocial variables mean scores for demographics (ANOVA).

	N	COSOC	OC	P-CSR beh
Gender				
female	201	29.36	34.92	33.23
male	144	29.11	34.79	32.85
F		.28 (1.343)	.04 (1.343)	.49 (1.343)
Occupation				
employers	100	31.05*	38.09*	35.37*
employees	245	28.53*	33.55*	32.14*
F		25.93 (1.343)	52.16 (1.343)	33.11 (1.343)
Type of business				
production	42	31.19*	38.43*	36.50*
service	303	28.99*	34.37*	32.60*
F		9.79 (1.343)	19.86 (1.343)	24.47 (1.343)
Company size				
small	205	29.86*	35.54*	33.48
medium	132	28.34*	33.86*	32.40
F		10.01 (1.335)	7.09 (1.335)	3.82 (1.335)
Di.Co.Te				
no	215	27.99*	33.01*	3.16*
yes	130	31.36*	37.92*	36.25*
F		57.45 (1.343)	73.17 (1.343)	113.74 (1.343)

\* Significant difference  $p < .05$ .

The main hypothesis ( $H_1$ ) of this research was to test the mediating role of COSOC between PCSR and OC. Structural Equation Modeling (SEM) analysis confirmed that PCSR indirectly affected OC through the mediation of COSOC.

Table 4 shows the indices of fit of the model (overall) and figure 1 indicates the model parameters (overall). PCSR positively influenced the COSOC ( $\beta = .52$ ), which in turn affected the OC ( $\beta = .69$ ). In addition, we calculated the indirect relationship between PCSR and OC: social responsibility affected the commitment through the organizational sense of community with a  $\beta = .37$  ( $p = .00$ ).

Finally, the third hypothesis ( $H_3$ ) expected that the model parameters were higher for the sub-sample of participants in DI.CO.TE. project compared to non-participants. In other words, we assumed that the effect (direct and indirect) of PCSR on OC was higher for participants in DI.CO.TE. project.

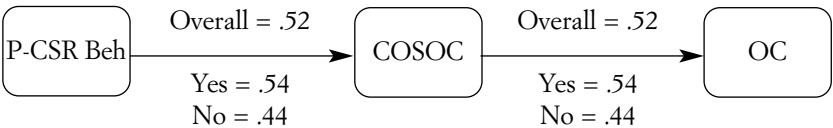
Table 4 shows the fit indices for the two sub-samples of participants (DI.CO.TE. yes) and not participants (DI.CO.TE. no).

**Table 4.** Tests of model fit.

	Overall [N = 345]	Di.Co.Te. yes [N = 130]	Di.Co.Te. no [N = 215]
$\chi^2$ - Value	10.25	3.79	2.34
Degrees of Freedom	1	1	1
P-Value	.00	.05	.12
CFI	.97	.96	.99
TLI	.95	.95	.98
RMSEA			
Estimate	.07	.05	.07
90% C.I.	.05 .08	.00 .08	.00 .10
p RMSEA <= .05	.04	.09	.22
SRMR	.03	.04	.02

In both cases, the model showed an acceptable fit. Figure 1, however, indicates the parameters of the model for the subsample of participants (yes) and non-participants (no).

**Figure 1.** The empirical model of Sustainable learning in the organizational contexts.



The analyses seemed to confirm the hypothesis: P-CRS affected more COSOC in the sub-sample of participants ( $\beta = .54$ ) than non-participants ( $\beta = .44$ ). The difference was even more marked referring to the relationship between COSOC and OC:  $\beta = .97$  for participants versus  $\beta = .43$  for not-participants. In addition, in this case we calculated the indirect relationship between PCRS and OC, through COSOC and, as expected, was higher for participants ( $\beta = .30$ ,  $p = .00$ ) than non-participants ( $\beta = .19$ ,  $p = .00$ ).

## Discussions and conclusion

Within Community of Practice literature, the present study aimed at exploring the corporate sustainable learning process, pointing out both the structural invariance of the model and any differences between business professionals of Apulian SMEs involved in the research study, supposing that ICT tools played an important role of mediation in fostering such a process.

Moreover, we hypothesized that CSR practices developed organizational sense of community, which in turn enhanced business professionals' committed identity, in line with the conceptualization of learning as a participation process (Wenger, 1998). In addition, we suspected that ICT tools fostered such a learning process activated by the business professionals' community of practice.

The findings of the present study confirmed our hypotheses. Thus, the psychosocial model of corporate sustainable learning seemed to be specular to the process of participation-membership-identity, conceptualized by Wenger (1998). This process well explains the continuous development of social learning, in which people are continuously, involved participating in sustainable practices of their community organization, so developing their committed identity.

Transposing Wenger's conceptualizations to our model, we argue that when business professionals participated in socially responsible practices, they were engaged in a system of learning activities, which enhance the organizational sense of community and the committed identity, thus facilitating in turn sustainable development. In addition, such a sustainable learning model was able to differentiate among



workers using technological tools for sustainable activities. This showed the fundamental role of ICTs in fostering the corporate sustainable learning process.

Because of these theoretical considerations, some practical implications could be highlighted for SME management, in order to both promote and integrate corporate socially responsible activities simultaneously involving employers and employees, and ICTs as artifacts of mediation. First, SME management could work on sharing corporate values and norms, appealing employees in defining the organizational culture of CSR, as a common repertoire driving organizational practices. Then, SME management and employers could involve employees in a digital social network, able to stimulate the awareness of organizational performances and sustainable orientation, thus participating in the sustainable practices in a blended way that integrate the online e offline dimensions.

We acknowledge that the present study had some limitations. First, our data were about a sample of participant from Southern Italy. That is to say, on one side, we underlined the specificity of the analysis related to the social and cultural aspects of this small geographic area; on the other, the analyses could be extended to different Italian or foreign contexts. Second, future research work should provide a deeper investigation of the corporate sustainable learning model, exploring in-depth what and how sustainable practices and ICTs are crucial in fostering such a self-process.

To conclude, the findings of the present study show that, in the SMEs sample, sustainable learning could be conceived as a social process, engaging business professionals in an intersubjective dynamic among business professionals who co-participate in a goal-directed interaction through which organizational sense of community develops and self-concept is constructed simultaneously. Such a sustainable learning model is significantly mediated by the use of ICT, which may deeply sustain and reinforce the social leaning processes at an organizational level of analysis. This implies new theoretical suggestions, some practical implications and limitations, which orient to further investigating the psychosocial model of corporate sustainable learning analyzed in this study.

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