

Generation Y & Team Creativity: The Strategic Role of e-HRM Architecture

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Abstract. Nowadays HR Departments intend to be a 'business partner'; this means sustaining the critical sources of competitive advantages, such as knowledge creation, creativity processes and innovation. In order to attract, retain and develop the 'new creative and always connected' talents of the Y Generation, to design a new e-HRM architecture is a strategic issue. The present article, starting from a wide empirical experiment with a sample of 1078 students, provides valuable results about the relationship between team and individual creativity and suggests some useful indications for e-HRM, especially for the new and not yet well known Gen-Yers. Multiple measures of both individual and team creativity were considered. Data confirm that individual creativity is positively related with group creativity but it does not fully explain it. Interpersonal dynamics intervene. This evidence is the base for defining some guidelines which are useful in the design of strategic e-HR architecture, in supporting the new Y-Gen staffing, training and development as well as team design and interpersonal dynamics, in order to really enhance organizational creativity and competitive advantage sustainability.

1 Introduction

It is required that HRM departments become 'business partners'. This means designing an HR architecture that is able to generate and sustain a company's strategic value according to the specific sources of competitive advantage [1], [2].

Among others, innovation through creativity is recognized as a critical source of strategic success for many modern organizations that compete in fast, global, changing and continually pioneering industries. From an HR perspective, this means designing an HR architecture that is able to support creative processes and spread them within the whole structure both by creating favourable organizational conditions and by sustaining individual creative talents. [3].

Our paper aims to explore the possible strategic role of e-HR systems to sustain creative processes, specifically considering a new crop of young people in the work force, the so-called Y Gen. [4], [5], [6]. They are talented, self-starting and, especially, creative, but also still controversial about their behavioural and cognitive styles [7].

Our research sets its sight on the Y Gen creativity processes to analyse how they behave when involved in creative activities, especially considering their mind-set about social interactions and their learning styles [5], [6]. Our results are particularly relevant for the e-HRM perspective, because they prove that the e-HRM approach could be truly strategic in the sense that it is really joined to the new creative Generation Y.

2 Theoretical Background and Research Questions

A sustainable competitive advantage implies composite creative activities to cope with the increasing environmental complexity and to be proactive in the competitive arena [3], [8]. The *new* Gen-Yers are described as resourceful and original and well suited for the creative challenge; they are also the *new* Virtual Generation, always connected and with special learning and cognitive styles. These considerations suggest the development of *new* HRM solutions to help companies manage their creative Y-Gen young talents for their strategic purposes.

2.1 Individual and Collective Creativity

Creativity is the production of new, useful ideas by an individual or small group of people working together [9], [10], [11]. In the literature it has been traditionally described as an individual characteristic and various previous studies have focused primarily on personality traits associated with creative behaviours, cognitive factors, and motivation [12], [13].

Interest in the collective dimension of creativity is more recent, coinciding with recognition of its strategic value in a business setting [11]. But literature on group creativity mainly concentrates on contextual or organizational conditions able to enhance creativity [10], [3] and little emphasis has been given to organizational design issues related to effective HRM architecture. Moreover, only few research projects consider the relationship between individual and collective creativity and they have some limitations that restrict the comparison of findings and generalization of results [14], [15]¹.

2.2 Y Gen

According to Generational Theory [16], Y Gen is composed by a birth cohort that started life between 1982 and 2003 [17]. Wilson & Gerber [7] identified seven distinguishing traits of Gen-Yers. They are ‘special’ considering their parents’ care; ‘sheltered’ – that is wrapped in cotton wool; ‘confident’ – that is optimistic about their future prospects; ‘team-oriented’ – that is skilled in collaborative effort; ‘achieving’ particularly about their career, without involvement in idealistic activities; ‘pres-

¹ For a more complete literature review on creativity see also references 17 and 18.

sure', especially by their workaholic parents and finally; 'conventional' that is strongly attached to parents and family even if born in a divorce culture.

Also [6] describes Gen-Yers' with a strong sense of entitlement. Their work expectations are high pay, flexible work schedules, fast career tracks and work and life balance. They are multitasking and have a low power distance attitude.

Proserpio and Gioia [5] describe them as the Virtual Generation, familiar with virtual technologies and therefore characterized by a virtual cognitive and learning style, needing an aligned teaching pedagogy: non linear, focused more on deuteron-learning, autonomous, interactive, and conceiving learning as fun.

Companies are sincerely interested in how to manage and engage them because and they are their future managers and leaders. They seem to be very different from the previous Generation X, but there are still a lot of grey areas concerning their working expectations and performance drivers. It is still an enigma how to attract and retain them and how to design effective organizational systems to manage their development paths [6], [18], [19], [20].

2.3 HRM and e-HRM

The rapid development of the Internet during the last years fostered the HR systems toward the new e-HRM approach [21]. The new technological opportunities are a bridge that could help the connection between the two parts of the working relationship; for the organizations, e-HRM solutions are a way to support flexibility, knowledge-sharing, and development, while for employees, they are a new approach to cope with their working preferences and motivations [22].

e-HRM can be designed with three kinds of goals in mind: improving the strategic orientation, improving efficiency or/and improving client service orientation of traditional HRM; consequently there are three different types of e-HRM: operational - concerning the administrative area, relational - concerning the way to manage the relationship between organization and employers and finally - transformational, toward the alignment between employees and organizational strategy [23].

The academic interest in e-HRM has increased even if the research field is still new and the results are sometimes controversial and not consolidated into a unique theoretical framework [24], [25], [26]. Among others, more research is needed to better address different user-types and attitudes and to propose the strategic processes toward the e-HRM design and implementation. In fact there is some evidence of different actors' reactions to e-HRM, comprising, for instance, perception of attractions, image, but no evidence focuses specifically on particular kinds of users (such as Y-Gen). Moreover, considering the evidence about strategic intent and the consequences of e-HRM, at operational level, efficiency is still controversial and not addressed; relational and transformational consequences are almost lacking in the research findings and also the strategic approach is not well defined and analyzed [21].

2.4 Research Questions

Creative collectives can produce higher creative results than the mere collection of individual creativity [3]. This means that creativity can be and has to be organized. How to design creative teams? What are the relational and organisational conditions that can promote creative processes, considering the new Y Gen? Which could the role of e-HRM be to sustain individual and collective creative processes? How to design effective e-HRM architecture to sustain creative processes within organizations?

Given the state of the art of the literature on creativity, the description of the Y Gen, and the aim of this article, we empirically investigate: (a) the relationship between individual creativity of team members and group creativity; (b) the relationship among the various components individual and group creativity; (c) the interaction processes among team members in performing collective creativity tasks.

On the basis of this investigation, which involved 1078 undergraduate students, we discuss the role of e-HRM architecture in sustaining collective processes among Y Gen.

3 Research Variables and Methodological Design

Consistently with the literature analysis and in order to test our research questions, we considered multiple measures of both individual and group creativity. Group creativity was measured considering the collective output and was operationalized as a multiple variable according to Besemer and O'Quinn [27]. The three dimensions considered are: a) novelty, in terms of originality, b) resolution, in terms of how the product meets the expressed needs, c) elaboration and synthesis, in terms of general design. Individual creativity was measured by multiple indicators from the psychological literature (both Williams and Torrance test) [28], [29]. Fluency, flexibility, originality, lateral and associative thinking are some of the considered dimensions.

We designed an experiment to analyse the relationship between individual and team creativity. 1078 undergraduate students attending courses of Organizational Design, HRM and Organisational Behaviour at Catholic University in Milan compose the research sample. They formed 98 eleven people-groups, which were in charge of performing a creative product. An observer was assigned to each group, to look at the process together with the two researchers (according to the Critical Incident Technique). Group creativity was evaluated by a jury of 12 students, two researchers and two "experts" (an architect and a psychologist). 1190 people were totally involved. We also checked for some control variables (i.e. gender, age). At the end of the experiment, all the participants (including observers and the researchers) were asked to edit a semi-structured observation report to narrate their experience [30].

4 Preliminary Results

Overall results suggest some fruitful indications to better support creative processes through teams of Gen-Yers in high creative projects. The main evidence concerns team design and HR governance systems.

As mentioned, group creativity was measured according to the Besemer & O'Quinn scales [19]. To validate the scales, data on the 70 items were first synthesized in the 11 mid-factors all showing significant results of the related factor analysis models. In table 1 the synthesis factors and the explained variance of each model are shown.

Table 1. Synthesis factors and the total variance explained.

Items No.	Synthesis Factor	Total variance explained
9 items	ORIGINAL	85,95%
6 items	SURPRISING	86,96%
3 items	GERMINAL	87,7%
6 items	VALUABLE	67,1%
6 items	LOGICAL	82,43%
9 items	USEFUL	78,15%
8 items	ORGANIC	69,54%
5 items	ELEGANT	88,01%
5 items	COMPLEX	73,33%
6 items	UNDERSTANDABLE	72,18%
7 items	WELL CRAFTED	86,07%

Using these 11 synthesis dimensions, a further factor analysis model was performed. The new model indicates three factors that correspond to the three elements of the output creativity: component 1 corresponds to novelty, component 2 to elaboration & synthesis, and component 3 to resolution. The model results (table 2) statistically demonstrate the significance of the three dimensions proposed by Besemer & O'Quinn, as a consequence of the collected data.

The correlation table points to interesting connections among a number of the variables considered. First of all, group creativity has proven to be positively correlated with average individual creativity of the group, even though the intensity of the connection is not particularly high ($\rho = 0.268$). Looking at the various components, the most significant correlation is between product novelty and average individual creativity ($\rho = 0.307$). The correlation of elaboration & synthesis and resolution with average individual creativity is positive, but close to zero and not statistically significant, considering ($\rho < 0.1$). As for the control variables, the table shows a negative, although not significant, correlation between the year of birth of the participants and total group creativity ($\rho = -0.234$). The index becomes negatively significant when looking at the dimension resolution ($\rho = -0.248$). The index becomes negatively significant when looking at the dimension resolution ($\rho = -0.248$).

The regression analysis shows (see Table 3) a significant positive relationship between individual creativity and group creativity. Specifically we obtained the following results: a) there is a positive and statistically significant relationship between the average individual creativity of the team and the group creativity, but with a low predictive power; b) the dimensions of group creativity (i.e. novelty, elaboration & synthesis and resolution) show different levels of significance: there is a positive and strong relationship between novelty and individual creativity with a still quite low R^2 (0,162), and the significance of the regression model of individual creativity to resolution and elaboration is not relevant ($t > 10\%$).

Table 2. Factor analysis: rotated component matrix².

	Componets		
Factor Elaboration/Complex	.954	.103	
Factor Novelty/Original	.892	.164	.385
Factor Novelty/Surprising	.884	.195	.356
Factor Novelty/Germinal	.877	.187	.388
Factor Resolution/Useful		.977	.123
Factor Resolution/Logical	.180	.828	.480
Factor Elaboration/Organic	.242	.701	.623
Factor Resolution/Valuable	.517	.600	.540
Factor Elaboration/Elegant	.543	.243	.783
Factor Elaboration/Understandable	.246	.547	.746
Factor Elaboration/Well crafted	.464	.503	.688

To go deeper, we performed a two-step cluster analysis according to the following variables: average individual creativity of the group, individual creativity standard deviation of the group, overall group creativity, resolution, novelty, elaboration and synthesis. We identified four clusters. *Cluster 1* is composed by low-creative people in a very homogeneous way. *Cluster 2* collects medium-creative people (on the average), but with a high variance within the group. *Cluster 3* collects low-creative people also with a high internal variance. Finally, *cluster 4* is composed of very homogeneous and high-creative people. Cluster analysis shows that cluster 4 is the best considering group creativity levels, with the exception of elaboration and synthesis (where the cluster 3 is the best performer). Cluster 2 is characterized by low creative performance with reference to all the group creative dimensions. Cluster 1 is the worst one. Surprisingly cluster 3 obtains the best performance for resolution and the second-best performances for elaboration & synthesis and novelty, even if it is composed of low-creative people.

² Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 5 iterations.

Table 3. Regression models synthesis.

Dependent variable	Predictors (input)	R Square	Global Statistical significance Model	Standardized Coefficients	Statistical sig. coefficient
Group Creativity	Individual Creativity (avarage group) Individual Creativity (group std dev) Birth year (group average) Brain Right % Female	12.3%	sig. F< 5%	Individual Creativity (avarage group) 0,2608 Birth year (group average) -0,2265	sig. t<5% sig. t<6%
Factor Novelty	Individual Creativity (avarage group) Individual Creativity (group std dev) Birth year (group average) Brain Right % Female	16.2%	sig. F< 1%	Individual Creativity (avarage group) 0,3506 % Female -0,2638	sig. t<1% sig. t<5%
Factor Resolution	Individual Creativity (avarage group) Individual Creativity (group std dev) Birth year (group average) Brain Right % Female	6.2%	sig. F< 5%	Birth year (group average) -0,2483	sig. t<5%
Factor Elaboration	Individual Creativity (avarage group) Individual Creativity (group std dev) Birth year (group average) Brain Right % Female	5%	sig. F= 6.9%	Birth year (group average) -0,2236	sig. t= 6.9%

5 Results Discussion

Our data show that within Y Gen, individual creativity does not fully explain group creativity. Results also confirm the different relationships among various creativity components, both at group and at individual level. Specifically, the data demonstrate that novelty is strongly related to individual creativity, otherwise elaboration & synthesis are less influenced by individual creativity, and resolution is nearly independent.

Such considerations open up to the next part of our research agenda, which assume that social dynamics probably intervene in collective processes thus contributing to determine group creativity results. Cluster analysis made it clear that intervening processes have a broadening effect on individual creativity, and proved that joining a group could be advantageous in particular for certain kinds of people. Results suggest that the most creative and homogeneous groups seem to obtain the main advantage from the collective interaction, in particular with reference to novelty and elaboration & synthesis. But, more surprisingly, positive effects also concern groups characterized by a low average individual creativity and a high level of internal variance. These groups were the best for resolution and obtained a high score for elaboration and synthesis too.

Finally, with reference to the organizational and interpersonal dynamics, we took into consideration the semi-structured survey completed by observers and participants and, in an exploratory way, we identified six categories of intervening processes, that seems to have an important influence on the overall group creativity. *Emerging coordination roles* sustain creative group performance, whereas *positive affective relationships* produce ambiguous effects. They hinder collective creativity within the group composed of medium creative and homogeneous members (cluster 2), and seem not to be relevant in high creative homogeneous groups (cluster 4). *Managing conflicts, goal orientation, effective communication* are always positively related to creative collective performance. *Emerging rules and time awareness* seem to be particularly relevant for people that obtain a great advantage from collaboration (cluster 3).

6 Y Gen Creativity and e-HRM Implications for Theory and Practice

The empirical evidence, along with the Y Gen traits described in the sociological and pedagogical literature, allows us to focus on two main empirical results and to advance some points for designing e-HRM architectures that strategically support creativity in Y Gen teams.

The first main result is about the critical role of HRM in sustaining individual and collective creativity among organizations; not only highly creative people can obtain high creative results; also medium-creative people can produce a high level of collective creativity, when some interpersonal dynamics and rules occur. This confirms the relevance of people management practices in order to manage creative collective tasks both at individual and collective levels.

The second results, closely related to the previous one, is about the critical role of e-HRM about creativity; the Y Gen are called the Virtual Generation (V-Gen), in the sense that they are embedded in the Internet era, they are always connected and they are PC, console- and web-based gamers, they are completely used to technology [3]. All these factors underline the relevance of aligning people governance tools, using technology as a facilitator and mediator in the relationship between Gen-Yers and organizations, also for the HRM systems that have to move toward e-HRM.

According to these two main results, our research enables us to propose some guidelines for the design of e-HRM, which can support the psychological contract of the Gen-Yers (e- HRM relational purpose), and also organizational strategic sustainability by enhancing creativity (e-HRM transformational purpose). In particular we can draw some assumptions with reference to:

e-Attracting for Creativity. e-Recruitment and, in general, technology-based relationships are especially suited to the new and creative Y Gen style; they widely use such tools to communicate and interact. Gen-Yers often even prefer technology mediated relationships and, of course, this is also the case of working relations. In that sense e-recruitment can act as useful tool to attract and recruit the most creative young talents.

e-Staffing and Design for Creativity (People and Teams). The relevance of both creative and social competences in collective creative tasks means that an effective staffing process has to be designed also to assess individual behavioural competences, not only technical and creative ones. This could also include assessing sessions of the individual behavioural competences useful to develop collective creative projects mainly managed through technological tools.

With reference to organizational design supporting creativity, our results highlight that it is possible to compose a creative team differently. It is possible to obtain a high degree of overall creativity through a team composed both by high homogeneous creative members and by less creative members led by a highly creative leader. Higher levels of resolution are possible in the second team structure, whereas higher levels of novelty are more probable using the first team structure. This means that the

internal team structure and job design have to be developed according to the individual creativity level and considering the type of creativity involved in the task.

e-Developing for Creativity. One of the main issues in the creativity literature is the assumption that creativity can be learned. On the other hand, some studies demonstrate that Gen Yers have a non linear, deuteron and interactive learning style, which is different from the learning approach of the previous generations. This has an important impact on the training systems design. The main evidence is that IS-based methodologies become critical and a Web-based learning approach and tools to support social networking, community development and knowledge sharing will be crucial for the employees development.

Finally, and more generally, all the e-HRM architecture has to sustain those interpersonal and social competences that are critical in the collective creative team activities. This should be included into the design of evaluations and performance appraisal systems, compensations structure, career development paths.

These results ask for deeper empirical analysis in the field of declining e-HRM architectures for different employees (Gen Y versus other generations, and Gen Y across different countries, different technological environments and cultures). Furthermore other studies are needed to move toward a new e-HRM approach that is able to sustain a self-centred development attitude, which is aligned with the Gen Yers' style.

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