EXPERIENCES AND TOOLS

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*Measuring the restorative value of the environment:
Contribution to the validation of the Italian version
of the Perceived Restorativeness Scale*

*Misurare il valore rigenerativo dell'ambiente:
contributo alla validazione della versione italiana
della Perceived Restorativeness Scale*

Introduction

The purpose of this study was to verify the psychometric characteristics of the Italian version of the *Perceived Restorativeness Scale* (*PRS*), designed to measure the perceived restorative qualities of environments (Hartig, Korpela, Evans & Garling, 1997): in particular to assess the reliability and the validity of the scale, also exploring its the factorial structure. Over the past decades the PRS has been considered a reliable tool and employed in an increasing number of studies to measure the degree of perceived restorativeness of natural and built environments. In parallel little research has been conducted to test the psychometric characteristics of the scale itself. In particular this type of research lacks completely for the Italian version of the PRS. A reliable instrument in Italian does not exist and the scale translation is at the researcher's discretion. The aim of this study was to verify the validity and reliability of the Italian translation of the five-factor PRS proposed by Hartig (personal communication, July 1997).

The PRS is based on the Attention Restoration Theory (ART; Kaplan, 1995). According to this theory exposure to natural environments helps recovery from attentional fatigue (Berto, 2005; Kaplan, 1995). Natural settings attract involuntary attention (a kind of effortless attention) due to their fascinating qualities (James, 1892), thus directed attention (a kind of effortful attention) can rest and be restored (Kaplan, 1995). According to ART theory there are four components of the environment that contribute to restoration, *being-away*, *fascination*, *extent* and *compatibility* (Kaplan, 1995). Nevertheless, the PRS version subject of this study measures the perception of five restorative factors instead of four. This is due to the fact that the construct *extent* implies settings having scope and coherence that engage the mind and promote exploration. Hence the construct *extent* was divided into two distinct constructs, *coherence* and *scope*. Consequently, the PRS measures the following five restorative constructs: *Being-Away*, *Fascination*, *Coherence*, *Scope* and *Compatibility* (Hartig, personal communication, July 1997). The constructs can be explained as follows.

- *Being-Away*: for an environment to be restorative one must feel a sense of being-away, due to a change of scenery as well as an escape from some aspects of life that are ordinarily present, such as distractions, obligations and pursuits of purposes and thoughts. It implies escaping from unwanted distractions in the surroundings, distancing oneself from one's usual work and reminders of it, and suspending the pursuit of particular purposes (Kaplan & Kaplan, 1989).
- *Fascination*: also called "effortless attention". It is considered the main component of a restorative experience. People respond with involuntary attention (James, 1892) or *fascination* (Kaplan, 1995) to natural settings and this is the key process to restore from mental fatigue (Berto, 2005; Kaplan, 1995). Fascination can go toward particular contents and events and can also be engaged in processes of exploring and making sense of an environment. Fascination can have pleasantness and intensity dimensions as well as functional dimensions.
- *Coherence* (derived from *extent*): it refers to a physically or conceptually coherent environment that sustains exploration and interpretation. The environment is perceived as a whole with a larger organizational structure.
- *Scope* (derived from *extent*): it refers to the environmental characteristics that extend in time and space, so that the environment is perceived to be possible to enter and spend time in.
- *Compatibility*: It refers to a fit between the environmental support for intended activities and the individual's inclinations.

Numerous studies with young adults and restorative environments have shown indications of adequate reliability and validity of the PRS (e.g. Hartig et al., 1997; Korpela & Hartig, 1996; Purcell, Peron & Berto, 2001), though there is no consent on its factorial structure. Hartig, Korpela, Evans & Garling (1996) showed that factor analysis

EXPERIENCES AND TOOLS

which specified a four-factor solution did not uncover a stable structure which included factors defined respectively in terms of the a priori *Being-Away*, *Fascination*, and *Compatibility* items. The factor analytic results did not clearly reveal independent *Being-Away*, *Fascination*, and *Compatibility* subscales. Further analysis pointed to either a two-factor solution or a four-factor solution corresponding to the structure suggested by the ART being-away, fascination, extent, compatibility (Hartig et al., 1996). In a study by Laumann, Garling & Stormark (2001) factor analyses of the further developed PRS scale yielded a five-factor structure in part consistent with Kaplan and Kaplan's theory (1989). This theory (1989) points four restorative components (i.e. *being-away*, *extent*, *fascination* and *compatibility*) whereas in Laumann et al. (2001) a fifth component was added, in fact being-away ratings loaded on two separate factors labeled *Novelty* and *Escape*. In Laumann et al.'s study (2001) being-away/escape, extent, fascination and compatibility were perceived as separate constructs.

As said above, there is not a common version of the scale in Italian. This study was designed to test the psychometric characteristics of the Italian version of the PRS (*PRS/IT*). Considering that the factorial structure of the PRS is still an open question, this study aims to find out how many factors gives the most appealing structure for this a priori five-factor scale proposed by Hartig (personal communication, July 1997) performing an Explorative Factor Analysis. This study addresses also two main limitations of the previous studies where only students, the so-called young adults, participated and only one environment was assessed, enhancing the methodology by involving subjects belonging to three different age groups whose age ranged between 19 and 93 years, and using the assessments of 10 different places ranging from "natural" to "built".

Given that the PRS was modified many times, in fact 16 items were added to the first 15 item structure, and then again five items were removed to come to a 26 item version (Hartig et al., 1997), in this study the pertinence of the items was considered as well. To accomplish this aim, four experts were requested to assess the pertinence of each item to the construct of restorativeness.

Though the a priori five-factor solution proposed by Hartig (corresponding to being-away, fascination, coherence, scope and compatibility) has never found factorial confirmation, to us by the light of the item contents this a priori solution cannot be excluded, on the contrary it will be taken into account first and secondly the a priori four factor solution consistent with ART, the theory the scale is based on. Even if *Coherence* and *Scope* items can be grouped under the same factor (to ART it is *extent*; Kaplan, 1995), to Hartig *Coherence* is an important aspect in the assessment of the perceived restorative value of environment, therefore we expect this factor to turn out as a separate construct. *Compatibility* is another important aspect in the restorativeness assessment and it expected to find factorial confirmation as well. That being said, expectations concerning explorative factor analysis are difficult to state, and we hope to obtain at least a two-factor solution corresponding to the two main factors, *Fascination* and *Being-Away*. ART considers the opportunity for the depleted attentional capacity to rest (*Fascination*), and the escape from some aspects of life that are ordinarily present (*Being-Away*) to be an essential condition for assessing a place as restorative. Restoration means to do what you like most (*Compatibility*), far from daily routine (*Being-Away*), effortlessly (*Fascination*), in a place where everything has a proper place (*Coherence*), and without limits of time and/or space (*Scope*).

Methods

Participants

In the present study, 170 subjects (75 males and 95 females), with age ranging from 19 to 93 years old, participated. Participants were grouped into three different age groups: 60 young adults, 19 to 31 years old ($M = 23.73$, $SD = 3.65$); 60 adults, 35 to 56 years old ($M = 45.65$, $SD = 6.62$) and 50 elderly, 62 to 93 years old ($M = 80.64$, $SD = 8.41$). Males and females were equally present in all groups except in the elderly group where 70% of the participants were females.

Material

Ten color photographs of outdoor environments were used. The photographs spanned the range from totally natural to totally built environments as well as the entire range from low to high preference and restorativeness scores (Berto, 1998, 2007; Hernandez, Hidalgo, Berto & Peron, 2001; Purcell et al., 2001). The photographs represented five environmental categories (two photographs per category): industrial zone, housing, city streets, hills, lakes.

Instrument

The Italian version of the PRS (translation by Peron & Berto, in Berto, 1998) was used. Based on previous studies the PRS can be

considered a reliable measure (Cronbach's alpha = .93, Berto, 1998). The PRS is made up of 26 items and it measures the perception of 5 restorative factors: *Being-Away* (6 items), *Fascination* (7 items), *Coherence* (4 items), *Scope* (3 items), *Compatibility* (6 items). Three items not concerning the restorativeness measurement are also present. They concern *familiarity* (1 item) and *environmental preference* (2 items). Judgments are made on a 0 to 10 point scale, where 0 = "Not at all", 6 = "Rather much", and 10 = "Completely" (see Table 1).

Procedure

Participants of each group were randomly assigned to 10 subgroups. To each subgroup one of the 10 photographs was randomly assigned. Subjects received a copy of the PRS/IT and instructions were given. The instruction to the PRS/IT said:
We are interested in how you experience this environment. To help us understand your experience, we have provided the following statements for you to respond to. Please read carefully, then ask yourself: "How much does this statements apply to my experience there?". To indicate your answer, circle only one

numbers on the rating scale beside the statement. A sample of the rating scale is given below and at the top of each subsequent page. So, for example, if you think that the statement does not at all apply to your experience of the environment, then you would circle "0" (not at all), if you think it applies rather much, then you would circle "6" (rather much), but if you think that it apply very much, you would circle "10" (very much).
If the subject correctly understood the instruction then the photo was shown. Subjects had to rate each item of the PRS/IT in relation to the photograph. In the elderly group the PRS/IT administration was assisted by the researcher because of their sensory deficits.
Young adults and adults only were also asked to assess the photograph on an 11-item battery concerning the following aesthetic attributes (Nasar, 1994): 1-vegetation, 2-diversity-visual richness, 3-harmony-congruence, 4-openness-spaciousness, 5-brightness, 6-cultural-historical places, 7-cleanliness, 8-maintenance-upkeep, 9-leisure activities, 10-meeting place, 11-novelty (Nasar, 1994). The attributes were rated on a 1 to 5-point scale where 1 = "Not at all", 5 = "Very much".

Results

Psychometric characteristics of PRS/IT

Reliability is the level of internal consistency or stability of the restorativeness scores of an environment, measured with the PRS over time and independent of the evaluator. Item reliability was measured with Cronbach's alpha, and the results showed alpha to be .95, which must be considered very good given that only 6 items showed an item-total correlation lower than .50.
The restorativeness mean score averaged across groups and environmental categories was calculated (see Table 1). In order to assess the effect of gender, age and environmental category on this scores, a $2 \times 3 \times 5$ ANOVA, with three between subject factors: "gender" (2 levels), "age group" (3 levels) and "environmental category" (5 levels), and the PRS/IT mean scores as the dependent variable, was performed. This analysis showed the main effect of the "environmental category", $F_{(4, 140)} = 20.73$, $p<.001$, showing that the restorativeness scores of the five environmental categories differ from one another. As shown in Table 1, the in-

Table 1
PRS/IT mean scores and standard deviations of the three age groups across the five environmental categories

Environmental category	Young adults		Adults		Elderly		Total	
	M	DS	M	DS	M	DS	M	DS
Housing	3.76	1.15	4.87	1.79	4.20	1.72	4.28	1.60
City streets	4.71	1.29	4.20	.73	4.70	1.13	4.52	1.07
Industrial zone	3.17	.65	2.70	1.29	3.52	1.64	3.10	1.24
Hills	5.27	1.17	5.77	1.30	6.48	1.95	5.80	1.51
Lakes	5.42	1.96	5.66	1.80	7.14	1.19	6.01	1.82
Total	4.46	1.54	4.64	1.79	5.21	2.04	4.74	1.80

EXPERIENCES AND TOOLS

dustrial zone showed the lowest restorativeness score, whereas the lakes the highest. Scheffé's post-hoc analysis showed that neither differences between city streets and housing, nor between hills and lakes occurred, whereas industrial zone showed a restorativeness value significantly lower than city streets and housing, and city streets and housing showed a restorativeness value significantly lower than hills and lakes ($p<.05$). This means that PRS/IT discriminates among different environments, with hills and lakes showing the higher restorativeness values and industrial zone showing the lowest ones.

Also the main effect of "age group" was significant, $F_{(2, 140)} = 3.57$, $p.<.001$. The post-hoc analysis showed that two groups had different values: the elderly gave in general an evaluation of restorativeness higher than young adults ($p<.05$).

There was no main effect of gender, i.e. no differences in PRS/IT scores between male and female, no "environmental category" × "gender" interaction, and no "environmental category" × "age group" interaction, i.e. differences among categories were independent of gender and age group. This is a relevant result, because it means that PRS/IT is a measure which can discriminate among different environments, with more or less degree of restorativeness, independently from gender and age. Nevertheless, scores seem to be higher for the elderly.

One of the main method to determine whether a test has content validity, which refers to the extent to which a measure represents all facets of the concept restorativeness, is to call upon expert judgments. For this reason Bausell's method (1986) was used here. Four experts, familiar with restorative environment studies,

were asked to make judgments on the pertinence of each item of the PRS/IT on a 1 to 4 scale, where 1 = "Not relevant at all", 2 = "Less relevant", 3 = "Quite relevant", and 4 = "Very much relevant". Judgments were then grouped into two categories: 1-2 to "Not much relevant" and 3-4 to "Relevant". Even though content validity computed with Bausell's method was non very high (.49), the main aim of this analysis was to verify the pertinence of each item by experts. Ten items were considered relevant by all judges, items n° 1, 4, 9, 12, 14, 15, 16, 22, 25, 28, and 6 items were considered relevant by three judges, items n° 2, 13, 19, 20, 26, 27. Notably 16 items out of 26 were considered relevant by at least three judges. Four items were considered relevant by two judges, items n° 5, 6, 17, 18, while 7 items were considered not relevant by at least three judges, items 1, 3, 7, 8, 11, 23, 24. None of the items were considered not relevant by all four judges. This result illustrates that the constructs possess a pretty good level of content validity, which means that the items could be representative of construct universe, given the fact that no item was considered completely irrelevant by all judges. Nevertheless, some items seem to be non essential: in particular experts evaluated as less pertinent items belonging a priori to *Scope* (n° 7, 17, 24) and *Compatibility* (n° 3, n° 11, n° 18), 1 item of *Coherence* (n° 23) and 1 of *Being-Away* (n° 1) were considered non relevant, 1 item of *Fascination* (n° 6) showed a low relevance.

Concerning criterion-related validity, concurrent validation was performed on the PRS scores and Nasar's (2004) physical-aesthetic attributes available for 120 of the 230 participants. Pearson's correlation coefficient between the PRS scores and the mean scores

of the 11 Nasar's physical-aesthetic attributes was $r = .63$, $p<.001$. Though the coefficient was quite high, it is not high enough to justify a conclusion that the two instruments are measuring the same construct: generally speaking, restorativeness does not overlap the assessment of the physical-aesthetic attributes of the environment.

Familiarity (one item) and environmental preference (two items) items were used to measure the relations among these constructs and restorativeness, measured with PRS/IT. Environmental preference rating is generally related to restorativeness, i.e. high restorativeness scores go with high preference scores and vice-versa (see for example Purcell et al., 2001; Hernandez et al., 2001, Berto, Magro & Purcell, 2004). The two environmental preference items were correlated with the PRS/IT scores. The correlation for the item 28 (*Absolute preference*), was $r = .78$ with $p<.001$, while it was $r = .66$ with $p<.001$ for the item 29 (*Relative preference)*. Conversely, the item 21 (*Familiarity)* had a lower correlation with the PRS/IT scores, $r = .47$ with $p<.001$. A similar result was found in previous studies (see for example Purcell et al., 2001; Hernandez et al., 2001, Berto et al., 2004).

Testing the a priori structure proposed by the PRS Author: extraction of five factors

The PRS/IT measures five restorative factors: *Being-Away, Fascination, Coherence, Scope* and *Compatibility* (Hartig, personal communication, July 1997). Explorative Factor Analysis was here used to find out the number of factors that explain most of the variance observed in all the 26 items of the scale within a fine structure that make sense. The Maximum-Likelihood Method as

factor extraction method, and Varimax rotation method were used. From Bartlett's Test of Sphericity turned out that the correlation matrix is not an identity matrix, $\chi^2_{(325)}$ = 2408; p<.001, demonstrating that the factor model was appropriate. The Kaiser-Meyer-Olkin showed a very good sampling adequacy (KMO = .925). It was decided, in an initial analysis, to extract five factors first, as suggested by the a priori structure suggested by Hartig. These five factors extracted explained 54.4% of the variance. Extraction communalities are estimates of the variance in each variable accounted for by the factors in the factor solution. Small values indicate items that do not fit well with the factor solution and should be dropped off from the analysis, because low communalities can be interpreted as an evidence that the items analyzed have little in common with one another. Item 19 (*Easiness of orientation*) showed a communality value lower than .30. Values of communalities for the other items are high enough, and this means that solution is acceptable.

The factor loading matrix for this five factor solution is presented in Table 2. In order to have a display easy to read, coefficients equal or lower than |.35|, that suggest a weak relation between item and factor, are not present. The first rotated factor is most highly related with 8 items, 6 of which belong to the theoretical construct fascination. Also two item of the a priori construct *Compatibility* (15 and 25) have high correlation with this factor. The second factor corresponds to the a priori construct being-away, with all the 6 items of this construct and other two items, one of *Coherence* (item 8) and one of *Compatibility* (item 3). A third factor is easy to single out, three out of

four items of *Coherence* and item 19 (*Compatibility*) to this factor are related. The fourth factor includes 6 items: Three of *Scope* (7, 17, 24), two of *Compatibility* (11 and 18) and one of *Fascination* (26). The last factor includes only one item (15, *Compatibility*), which is also highly correlated with the first factor.

Testing a structure based on ART: extraction of four factors

According to the principle of parsimony, it was verified whether a smaller number of extracted factors could explain the data as well. A criterion generally used to decide how many factors must be extracted is to observe eigenvalues. The eigenvalue for a given factor measures the variance in all the variables which is accounted for by that factor. If a factor has a low eigenvalue, then it is contributing little to the explanation of variances in the variables and may be ignored and considered redundant. From our data only four factors showed eigenvalues higher than 1. For this reason we considered a solution with four factor extracted. This solution accounts for 52.1% of the variability. This suggests that four latent factors could be associated with restorativeness, even if room remains for unexplained variation.

Table 3 shows the rotated factor matrix for the four factor solution. This does not differ too much from the previous five factor solution: Three latent factors (the first, the second and the fourth one in the table) are clearly recognizable; they are *Fascination, Being-Away* and *Coherence*. The last factor (the third one in the table) joins three items of *Scope*, two items of *Compatibility* and one of *Fascination* (item 26). Item 15 (*Compatibility*), which was the only item correlating with the fifth factor in the five-

factor solution, in this solution correlates only with *Fascination*.

Discussion

Results confirmed quite good psychometric requirements of the Italian version of PRS in terms of reliability and validity. This result is solid enough given that the study was performed on 170 restorativeness judgments of ten photographs belonging to five different environmental categories, made by participants of three different age groups. The PRS/IT turned out to be a scale measuring perceived restorativeness independently of gender and age.

Analysis of item pertinence supported the 26 item PRS version. In fact none of the 26 items were considered irrelevant by all the four judges requested to judge item pertinence.

Looking at the factorial structure, i.e. the latent construct that emerge from the explorative factor analysis, a four factor structure seems to be the most solid solution, considering the parsimony criterion, and also the one that gives the most valid structure. The rotated factor matrix was helpful in determining which theoretical constructs the PRS is measuring. Three factors out of four were found to be equivalent to the factors/constructs of the a priori five-factor scale, i.e. *Fascination, Being-Away*, and *Coherence*.

Two items highly related with the first factor, *Fascination*, i.e. item 13 (*Curiosity*) and item 20 (*Exploration and discovery*) fit perfectly the meaning of this construct concerning the possibility of exploring unknown places effortlessly. The other three items which are grouped under the same factor, are item 25 (*Personal enjoyment*) and item 15 (*Compatibility with personal interests*), a priori belonging to compatibility,

EXPERIENCES AND TOOLS

Table 2

*Factor loadings and communalities with extraction of five factors
and varimax rotation, for the PRS/IT (N = 170)*

A priori factor	N°	PRS/IT item	Communality	F1	F2	F3	F4	F5
FA	20	Exploration and discovery	.68	.73				
COM	25	Personal enjoyment	.69	.69		.33		
FA	13	Curiosity	.64	.68	.37			
COM	15	Compatibility with personal interests	.86	.67				.53
FA	6	Place of interest	.58	.67				
FA	4	Fascination	.68	.63	.44			
FA	22	Attentional draw	.69	.62	.30	.41		
FA	10	Wide exploration	.46	.56				
B-A	9	Escape	.67		.72			
B-A	12	Stop thinking about things to do	.67	.37	.71			
B-A	5	Break from routine	.72	.49	.67			
B-A	1	Refuge	.57	.35	.61			
B-A	14	Few demands for concentration	.33		.55			
COH	8	Coherence of things and activities	.48		.47		.42	
COM	3	Freedom of choice	.49		.46	.38		
B-A	16	No focus on things of no interest	.40	.37	.37			
COM	18	Freedom to do what I want	.66			.71		
FA	26	No boredom	.47			.56		
SCO	24	Complete place	.59	.37		.56		
COM	11	Few obstacles that limit choices	.42		.39	.39		
SCO	17	No boundaries	.40			.39		
SCO	7	Few boundaries limiting movement	.30			.38		
COH	27	Physical order	.59				.71	
COH	23	Easiness of legibility	.47				.64	
COH	2	Physical order and coherence	.40				.52	
COM	19	Easiness of orientation	.22				.40	

Explained variance: 54.4%

Note. B-A = Being-Away, FA = Fascination, COH = Coherence, SCO = Scope, COM = Compatibility;
the a priori factor is reported. Coefficients equal or lower than |.35| are not present.

and item 16 belonging to *Being-Away* (*No focus on things of no interest*). All these items stress the possibility of satisfying personal inclinations, that means that the environment offers opportunities for personal interests and inclinations, engaging attention effortlessly, and this is coherent with the construct of fascination. It is clear that the second factor gathers all items corresponding to the theoretical construct "being-away". Being-away is not

only a physical escape but especially a psychological escape from everyday life. Therefore it is not surprising to find in this factor (besides five of the six items a priori belonging to fascination) also item 3 (*Freedom of choice*). In accordance to the definition of *Being-Away*, the content of this factor concerns removing physical and/or psychological obstacles which obstruct the satisfaction of one's wishes. Item 8 (*Coherence of things and activities*) is

less easily associable with this factor. It is worth noting that item 8 was considered low in relevance by three judges. It might be that the Italian version of this item is non easy to comprehend. The third factor groups all the items belonging to the theoretical constructs scope, two of the items of *Compatibility* and one of *Fascination*. Item 18 (*Freedom to do what I want*), that has a high correlation with this factor, suggests to assign the label

Table 3

Factor loadings and communalities with extraction of four factors
and varimax rotation, for the PRS/IT (N = 170)

A priori factor	N°	PRS/IT item	Communality	Fascination	Being-Away	Compatibility	Coherence
COM	25	Personal enjoyment	.70	**.72**		.35	
FA	13	Curiosity	.66	**.71**			
FA	6	Place of interest	.60	**.71**			
COM	15	Compatibility with personal interests	.62	**.69**			
FA	20	Exploration and discovery	.57	**.67**			
FA	4	Fascination	.68	**.64**	.42		
FA	22	Attentional draw	.66	**.60**		.42	
FA	10	Wide exploration	.45	**.56**			
B-A	16	No focus on things of no interest	.38	**.43**	.35		
B-A	9	Escape	.67		**.71**		
B-A	12	Stop thinking about things to do	.65	.41	**.67**		
B-A	5	Break from routine	.72	.53	**.65**		
B-A	1	Refuge	.56	.40	**.60**		
B-A	14	Few demands for concentration	.34		**.56**		
COH	8	Coherence of things and activities	.49		**.47**		.42
COM	3	Freedom of choice	.49	.35	.45	.39	
COM	18	Freedom to do what I want	.65			**.71**	
SCO	24	Complete place	.50			**.56**	
FA	26	No boredom	.46			**.56**	
COM	11	Few obstacles that limit choices	.42		.38	**.41**	
SCO	17	No boundaries	.40	.37		**.39**	
SCO	7	Few boundaries limiting movement	.25			**.36**	
COH	27	Physical order	.57				**.70**
COH	23	Easiness of legibility	.45				**.63**
COH	2	Physical order and coherence	.40				**.53**
COM	19	Easiness of orientation	.22				**.39**

Explained variance: 52.1%

Note. B-A = Being-Away, FA = Fascination, COH = Coherence, SCO = Scope, COM = Compatibility; the a priori factor is reported. Coefficients equal or lower than |.35| are not present.

of "compatibility" to this construct. Also the three items of *Scope*, grouped under this factor, i.e. item 7 (*Few boundaries limiting movement*), item 11 (*Few obstacles that limit choices*) and item 24 (*Complete place*) can be interpreted in relation to the subject's interests and aims, thus in terms of compatibility.

This factorial solution is coherent with the ART, which assume the presence of four restorative factors. In our data, nevertheless, the two restorative factors grouped together are scope and compatibility instead of scope and coherence, as in the ART.

Conclusions

This study gave important indications of the reliability and validity of the 26 item PRS proposed by Hartig (personal communication, July 1997), of its underlying factorial structure, of the adequacy with which its items correspond to the ART being the scale based on Kaplan's theory (1995). Given the lack in literature of consistent results in support of the theoretical a priori five factor structure (see for example Hartig et al., 1996, 1997), this factorial solution was here tested once again.

First, no gender and age differences on the assessment of the perceived restorative factors and on the total perceived restorativeness emerged. The 26 item

EXPERIENCES AND TOOLS

PRS is reliable, it discriminates between-among categories, and it is suitable for adults of different ages. From the explorative factor analysis the five-factor structure proposed by Hartig, did not turn out to be the most solid solution whereas the four-factor solution, in line with ART, did. In the four-factor solution all items found their collocation into a factor, none left. The pertinence of all items to the measurement of the construct restorativeness found further confirmation from the assessments of the four judges: none of the item was considered unnecessary to the measurement of the construct.

Given the large number of participants to the study and the range of environmental categories judged by the participants, which was wider than in other similar researches, the conclusion that the four factor structure is a highly plausible solution can be drawn.

Hartig's PRS was based on the ART (Kaplan, 1995). Hartig divided the construct extent (i.e. settings having scope and coherence that engage the mind and promote exploration; Kaplan, 1995) into two distinct constructs, i.e. coherence and scope. Even if only coherence found factorial confirmation from our results, Hartig's scale is still in accordance to the ART claims. Hartig singled out one important factor: Coherence. And this factor turned out from our results as well. To Hartig one of the factors proposed in the ART, i.e. extent, grouped two factors together, our results showed again that there is a factor grouping two factors. The four-factor solution confirmed four a priori factors out of five proposed by Hartig. The a priori five factors supposed to be measured by the Italian version of the PRS were being-away, fascination, coherence, scope and compatibility, from our the factorial analyses being-away, fascination and coherence turned out as separate constructs, whereas scope and compatibility were grouped together. To us, by the light of the item contents, compatibility is the factor grouping together scope and compatibility. The present study indicates also that the Italian translation of Hartig's scale by Peron and Berto (Berto, 1998) is a meaningful measure of the restorative components of environments measured with a set of scales tapping different dimensions. The Italian version of the PRS has been widely employed despite its psychometric characteristics were never verified. Now a reliable instrument in Italian exists and the PRS translation is not more at the researcher's discretion. To share the same instrument will allow Italian researchers to give a better contribution to restorative environment research.

As in the ART, the properties that make an environment restorative are four again. An environment to be perceived as restorative has to be far away from everyday demands (being-away), it has to be large enough to discover and be curious about things (fascination), it is a place where the activities and the items are ordered and organized (coherence), a world on its own with no restrictions to movements where it is easy to orient so you can do what you like (compatibility) (Berto, 2005). Hartig's PRS measures all this aspects of the environment. All this aspects help distinguish between environments which vary in the degree of perceived restorativeness and they refer to properties of environments which trigger mental processes or state that contribute to restorative experiences (Laumann et al., 2001). The PRS is just a starting point to the questions regarding restoration.

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SUMMARY. Introduction: The restorative value of the environments can be measured using the Perceived Restorativeness Scale (PRS; *Korpela & Hartig, 1996*). The PRS validity and reliability has been shown in numerous studies, though results concerning the factorial structure are not consistent. The purpose of this study was to verify the validity and the factorial structure of the Italian translation of the PRS by Peron & Berto (PRS/IT; Berto, 1998). The scale measures the perception of 5 restorative qualities of environments: Being-Away, Fascination, Coherence, Scope, Compatibility. **Methods:** To test PRS/IT psychometric characteristics, 170 subjects, with age ranging from 19 to 93 years, belonging to three different age groups, were shown a picture of an environment and were required to fill in the PRS/IT. Bausell's method was used to quantify content validity, while an Exploratory Factor Analysis were used to verify the factorial structure. At the same time four judges were asked to rate PRS item pertinence. **Results:** The main finding of this study is that the Exploratory Factor Analyses yielded a four factor structure where three a priori factors out of five were perceived as separate constructs (Being-Away, Fascination, Coherence), whereas two (Compatibility and Scope) were grouped together. **Conclusions:** Results showed that the Italian translation of Hartig's PRS is a reliable instrument that discriminates between-among categories and all items were considered pertinent to measure the construct restorativeness.

RIASSUNTO. Introduzione: la Perceived Restorativeness Scale (PRS; *Korpela & Hartig, 1996*) è lo strumento che consente di valutare quanto un luogo è rigenerativo. La scala misura 5 fattori (Being-Away, Fascination, Coherence, Scope, Compatibility) e la sua validità e affidabilità sono state dimostrate in diversi studi, ma non c'è grande accordo sulla sua struttura fattoriale. L'obiettivo del presente studio è indagare quindi la struttura fattoriale della versione italiana della scala di Peron e Berto (PRS/IT; Berto, 1998). *Metodi:* A 170 soggetti di età compresa tra gli 11 e i 93 anni, appartenenenti a tre diversi gruppi di età, è stata mostrata l'immagine di un ambiente ed è stato chiesto di compilare la PRS/IT. Sulle valutazioni è stata eseguita un'analisi fattoriale; parallelamente è stato chiesto a quattro giudici indipendenti di valutare la pertinenza di ognuno degli item della scala. La validità di contenuto è stata quantificata con il metodo proposto da Bausell, mentre la struttura fattoriale è stata analizzata con il metodo della massima verosimilglianza e rotazione varimax. *Risultati:* La PRS/IT è risultata affidabile ed in grado di discriminare tra le categorie ambientali; dall'analisi fattoriale è emersa una struttura a quattro fattori, in cui tre fattori di cinque sono stati percepiti come costrutti separati (Being-Away, Fascination, Coherence), mentre due sono stati raggruppati insieme (Compatibility e Scope). *Conclusioni:* I risultati hanno mostrato che la traduzione italiana della PRS di Hartig è uno strumento affidabile che discrima tra categorie; tutti gli item sono stati considerati pertinenti nel misurare il costrutto "restorativeness".

Keywords: Restortiveness, Validation, Factor Analysis

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