

Health & Wellness Resource Center

Toward a model of environmental activism.

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Author's Abstract:

The goals of this study were, first, to operationalize the notion of activism by using self-reported behaviors and, second, to propose and test a model of environmental activism. The results show that the Activism Scale is an acceptable measure of environmental activism. Furthermore, the proposed motivational model of environmental activism was supported by a path analysis of the data. Within the model, individuals' levels of autonomous motivation predicted the perceived responsibility of different organizations to prevent health risks, the amount of information people obtain from various sources, and the perceived importance of problems in the environment. In turn, those latter variables predicted the perception of environmental health risks. Finally, the perception of environmental health risks predicted environmental activism. The model demonstrates the importance of autonomous motivation in the prediction of environmental activists' behaviors and the central role perceived ecological risks play in the determination of environmental activism.

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People are highly concerned with the quality of the environment (Gagnon Thompson & Barton, 1994; Manzo, & Weinstein, 1987; Mohai, 1985; Prester, Rohrman, & Schellhammer, 1987). They are in favor of cleaner lakes, the preservation of forests, and a better air quality. In a review of the literature on environmental concern, Van Liere and Dunlap (1980) and, more recently, Jones and Dunlap (1992) attempted to determine more precisely the nature of the relationship between environmental concern and various social and demographic variables such as age, sex, income, education, occupational prestige, lieu of residence, and political ideology. They found environmental concern to be negatively associated with age; positively associated with level of education and political ideology; and inconsistently or weakly associated with income, occupational prestige, urban residency, and sex. For the most part, associations between demographic variables are moderate. Those results point to the limited use of demographic variables to account for environmental concern, and to the widespread diffusion of environmental concern in the population.

In spite of this general concern, people greatly differ in the level of their environmental involvement and in the amount of time and energy they are willing to invest in behaviors aimed at preserving or improving the quality of the environment. A recent study on motivation toward the environment suggests that these behaviors are not necessarily equal in terms of their level of difficulty (Green-Demers, Pelletier, & Menard, 1997). Some behaviors, such as recycling, are perceived to be easier than other behaviors such as, for example, purchasing environmentally safe products. In turn, the latter behaviors are perceived as being less difficult to perform than behaviors pertaining to educating people toward ecological issues or demonstrating for the protection of the environment. Although all these behaviors could be performed by every individual, however, as behaviors become more difficult, it takes greater motivation to perform

them (Green-Demers et al., 1997). In a recent study, Guagnano, Stern, and Dietz (1995) proposed a model that tried to link structural constraints or external conditions (C) to attitudes (A) in the prediction of environmental behaviors (B). This model postulates that environmental behaviors that are highly constrained--in other words difficult, expensive, or inconvenient for the majority of individuals (negative C)--will result in a low frequency of action, whereas less constrained behaviors (positive C) will be very common. Also, environmental behaviors in accordance to the attitudes of the majority of individuals (positive A) will result in frequent action, whereas behaviors in opposition to the attitudes of individuals (negative A) will result in less frequent action. The critical finding of this study is that the effect of A and C on behavior depends on the values of A and C relative to each other rather than on the value of either by itself." As a behavior becomes too difficult or too easy, variations in attitudes will have no significant effect on environmental behaviors. Environmental attitudes should be most predictive when the behavior to perform is moderately difficult. Those findings suggest that the effect of personal variables on environmental behavior is a curvilinear function of the strength of the external conditions. Those results parallel the findings of Green-Demers et al. (1997), suggesting that behaviors of a relatively high level of difficulty require a strong enough attitude or level of motivation to perform them. However, if the behavior is so difficult that no individual has a strong enough attitude or motivation to perform them, then those personal variables lose their predictive value. Thus, it appears that among the behaviors aimed at preserving and protecting the environment, there is a class of behaviors associated with more involvement and greater determination on the part of individuals. Activists' behaviors can be considered a form of these difficult environmental behaviors, requiring a greater amount of motivation or stronger environmental attitude for their performance.

In most of the studies on environmental activism, the concept has been defined as a function of specific behaviors. Examples of activists' behaviors include the following: being part of an environmentalist movement (Herrera, 1992; Walsh, & Warland, 1983); taking action on a particular environmental problem or conservation issue (Dresner, 1989; Syme, Beven, & Sumner, 1993); identifying strongly with a social group (Kelly, 1993); signing a petition or giving money to a group (Newcomb, Rabow, & Hernandez, 1992); being committed to solving societal problems (Sherkat, & Blocker, 1993); organizing a campaign on behalf of an antinuclear organization (Huebner & Lipsey, 1981); attempting to change the attitudes and actions of policy makers, citizens, and those who threaten the environment (Manzo & Weinstein, 1987); participating politically in environmental issues (Mohai, 1985); being an active member in an environmental organization (Edwards & Oskamp, 1992); and being ready to engage in environmental protection behaviors (Axelrod & Newton, 1991). In the majority of cases, environmental activism is defined as the function of an individual's association to an environmental organization. In his article, Brulle (1996) points out that in the United States, there exist various forms of environmental discourses that gave rise to various types of environmental organizations, and that different kinds of activists are members of those different types of environmental organizations. For a comprehensive discussion of a historical and theoretical perspective on the development of Environmental Organizations in the United States, see Brulle. In sum, environmental activists are people who intentionally engage in the most difficult ecological behaviors. They are usually members of environmental groups, are involved in fund raising campaigns or the signing of petitions, write letters to the government and to policy makers, and also try to influence people's attitudes and behaviors toward the environment. Environmental activists, like most individuals, are concerned about and dissatisfied with the quality of the environment (Manzo & Weinstein, 1987; Mohai, 1985). However, unlike most individuals, they are more actively committed to changing or improving the quality of the environment.

There have been empirical efforts to identify determinants of environmental activism. For example, it has been shown that environmental activists are usually of a higher socioeconomic level (Mohai, 1985; Walsh & Warland, 1983). Moreover, they do not believe as much in material well-being and in the use of technology (Herrera, 1992), and they tend to believe in the inevitability of nuclear war

(Axelrod & Newton, 1991; Edwards & Oskamp, 1992). Activists also report higher levels of personal efficacy toward aspects of environmental activism (Axelrod & Newton, 1991; Edwards & Oskamp, 1992; Huebner & Lipsey, 1981; Manzo & Weinstein, 1987; Sherkat & Blocker, 1993).

Researchers have also proposed that activists' behaviors could be triggered by the salience or severity of environmental threats (Axelrod & Newton, 1991; Edwards & Oskamp, 1992; Kunreuther & Slovic, 1996). For example, researchers have suggested that perceptions of the quality of the environmental conditions and the severity of environmental health risks, such as the risks posed by the level of pollution near a lake, can provide incentives to individuals and lead them to become more active toward their environment (Syme et al., 1993). Other determinants of these behaviors include the perception of resource availability defined as money availability (i.e., the individual income level) and any knowledge an individual possesses. These include any kind of expert knowledge (i.e. knowledge of law, science in general, fund raising, or organizing) or knowledge of any sort that could lead to the creation of opportunities for taking political action (Mohai, 1985), a sense of personal efficacy or internal locus of control (generally defined as the belief that the individual's actions can lead to change or can help prevent an environmental problem; Axelrod & Newton, 1991; Guagnano, 1995; Huebner & Lipsey, 1981; Mohai, 1985), and a global disposition toward the environment, such as a general desire for a cleaner environment. Finally, how much an individual perceives he has in common with most of his neighbors and one's political ideology, also has been identified as determinants of activists' behaviors. More specifically, strong relationships with one's community tend to lead to less environmental activism, whereas a liberal ideology tends to lead to more environmental activism (Walsh & Warland, 1983). In sum, many variables have been identified as possible determinants of environmental activism. Although these variables have been associated with the behaviors of environmental activists, to date, no comprehensive model has been proposed to integrate these variables and to predict environmental activism. The main purpose of the present study is to propose such a model.

More specifically, the goals of this study are twofold. Our first goal is to operationalize the notion of activism by using self-reported behaviors that generally best represent activists' behaviors. Our second goal is to propose and test a model that could allow us to better understand why some individuals engage in environmental activism. The variables included in this model are presented in the following section.

TOWARD A MODEL OF ACTIVISTS' BEHAVIORS

Our model of activists' behaviors is composed of six variables (see Figure 1). The first variable of the model is the Relative Autonomy Index (RAI) toward the environment. This variable assesses the extent to which people feel autonomous toward the environment. This concept of autonomy is similar to the concept of choice. In other words, autonomous individuals are people who voluntarily choose to do what they are doing with respect to the environment.

[Figure 1 ILLUSTRATION OMITTED]

The relative level of autonomous motivation toward the environment is assessed by measuring the different types of motivation proposed by Deci and Ryan (1985, 1987). Deci and Ryan proposed that each type of motivation can be placed on a continuum, ranging from a high level of autonomy to an absence of autonomy. These types of motivation are, respectively, intrinsic motivation, extrinsic motivation, and amotivation. Intrinsic motivation refers to behaviors that are voluntarily engaged in purely for the pleasure and satisfaction derived from their practice. Extrinsic motivation refers to behaviors that are performed for instrumental reasons (e.g., to receive a reward or to avoid punishment). Deci and Ryan (1985) proposed that there are four different types of extrinsic motivation that can also be placed on a continuum. From the less autonomous to the more

autonomous form of extrinsic motivation, they are the following: extrinsic motivation by external regulation, which represents the common form of extrinsic motivation and is characterized by behaviors controlled by external sources (e.g., behaviors done to receive a reward or avoid punishment); extrinsic motivation by introjected regulation, referring to behaviors controlled by external sources of motivation that have been internalized (e.g., behaviors done out of guilt); extrinsic motivation by identified regulation, characterized by behaviors that an individual chooses to do because they are congruent with his or her goals and values (e.g., it is important to improve the quality of the environment); and extrinsic motivation by integrated regulation, referring to behaviors not only valued by the individual but that have come to be a part of who the person is (e.g., it is part of my chosen lifestyle). Finally, amotivation refers to behaviors performed with no sense of purpose and to associated feelings of incompetence and lack of control.

Recent work by Stern and colleagues (e.g., Stern & Dietz, 1994; Stern, Dietz, & Kalof, 1993; Stern, Kalof, Dietz, & Guagnano, 1995) on the influence of value orientations toward the environment on environmental activism (or willingness to take action to protect the environment) can be linked to a specific type of extrinsic motivation, namely, extrinsic motivation by identified regulation. Recall that extrinsic motivation by identified regulation refers to actions that are chosen because they are in line with an individual's values. Similarly, Stern and colleagues talk about values that affect an individual's behavioral intentions. More specifically, Stern and colleagues describe three types of value orientations toward the environment: egoistic, humanistic, and biospheric value orientations. When motivated by egoistic values, an individual would act to protect the environment in the presence of possible high personal costs or would not become involved in environmental issues if the costs associated with action outweigh the expected benefits of action. When motivated by social-altruistic values, an individual would accept to bear possible costs for himself and become involved in environmental issues, if they believe that negative consequences are likely to occur to others. Finally, when motivated by biospheric values, an individual would become involved in the protection of the environment based on the presence of possible costs to the ecosystem or the biosphere (e.g., species extinction) in addition to humans. Interestingly, those value orientations have been found to have a direct as well as an indirect effect on intentions to act proenvironmentally.

The relative level of autonomous motivation toward the environment has been used in recent studies to predict people's level of involvement in environmental behaviors (Green-Demers et al., 1997; Tuson & Pelletier, 1992). Higher levels of autonomous motivation lead to more frequent environmental behaviors (Tuson & Pelletier, 1992), and this relation is stronger when the behaviors are of a higher level of difficulty (Green-Demers et al., 1997). More generally, the more people are autonomous toward the environment, the more they will be involved in environmental issues. This involvement need not to be exclusively behavioral; individuals can also become more involved by becoming more sensitive to environmental issues. In the present study, we propose that the more people are autonomous toward the environment, the more they will be sensitive to the perceived importance of problems in their local environment, to the responsibility of different organizations to prevent health risks, and to information from different sources about their environmental conditions. Eventually, this heightened sensitivity to environmental issues should lead to more frequent activists' behaviors.

The next four variables represent mediating variables of activists' behaviors. One of these variables is the perceived importance of problems in the local environment (the perceived importance of contamination of drinking water, of the runoff of farm products into streams and rivers, or of fish unsafe for eating). As we mentioned earlier, activists are concerned with the quality of the environment and by possible problems in their local environment (Manzo & Weinstein, 1987; Mohai, 1985). We hypothesize that perceived importance of problems in the local environment will lead to more activists' behaviors. When problems in the environment are perceived as important, individuals should perceive this environment as more threatening to their health, which should lead them to engage in more activists' behaviors. This concept of perceived health risks will

be developed in more details below.

Another mediating variable is individual's perception of the responsibility of different levels of government and different organizations (e.g., Environment Canada, private industry) to prevent health risks. Stern, Dietz, and Black (1985) found evidence for the influence of perceived responsibility on action toward the environment. They postulate that when it is possible to identify the sources responsible for a hazard or threatening environmental condition, action to protect the environment should result. Specifically, they talk about ascription of responsibility (i.e., a normative judgment made about the behavior of the person or of the organization directly responsible for the harmful environmental consequences). But their results show that when it comes to government, people perceive that the government has, what Stern et al. call, a moral obligation to act to resolve community problems regardless of who is responsible in reality. Along these lines, we propose that people perceive that different organizations should be responsible for the prevention of health risks, regardless of who is actually responsible. For example, people might expect that organizations such as Environment Canada should inform them about the health risks associated with specific environmental conditions. When people perceive that these organizations actually fulfill their responsibilities toward individuals by trying to protect them from health risks associated with the environmental conditions, their perception of health risks should increase, which in turn should lead them to become more active toward the environment. In sum, we believe that perceived responsibility of action to protect against health risks, on the part of various organizations, should lead individuals to believe that there is more threat to their health, which in turn should lead them to be more active toward the environment.

The third mediating variable we included in our model is the amount of information concerning health risks and health issues that people obtain from various sources of information. Environmental activists are people who are more implicated in the promotion of ecological issues and the protection of the environment. Those activists, then, seem more likely to be aware and be influenced by information pertaining to environmental issues and the state of environmental conditions than are nonactivists. As they are exposed to more information on health risks and health issues related to the conditions of the environment, their perceptions of health risks should increase. In turn, as mentioned above, when perceptions of health risks increase, people should manifest more activists' behaviors.

In sum, the last three variables should be positively linked to perceptions of health risks related to environmental conditions. The more people are sensitive to the perceived importance of problems in the environment and the more they are sensitive to the responsibility of various organizations to prevent health risks, the higher their level of perceived health risks associated with environmental conditions. In the same vein, the more they are sensitive to information concerning health risks and health issues, the higher the perceptions of health risks. In turn, the higher the perceptions of health risks associated with environmental conditions, the more likely people are to engage in activists' behaviors.

The fourth and last mediating variable is the perceived health risks associated with the environmental conditions. Past research by Baldassare and Katz (1992) has shown that people who perceive environmental problems in their region as serious risks to their health are more likely to engage in environmental behaviors such as, recycling, conserving water, and buying environmentally safe products. Moreover, the extent of perceived environmental threat was a better predictor of environmental behaviors than were other factors such as demographic variables. In the same vein, recent studies on perceptions of environmental health risks (Kasperson et al., 1988; Kunreuther, Easterling, Desvousges, & Slovic, 1990; Kunreuther & Slovic, 1996) show that perceived health risks predict various environmental behaviors. For example, women's perceptions of health risks associated with illness were found to be correlated with past or present health-related behaviors such as smoking or not being in shape (Calnan & Johnson, 1985). Similarly, we suggest that the perceptions of health risks associated with the environmental

conditions should be the most immediate predictor of activists' behaviors.

The last variable, the dependent variable, is the index of activists' behaviors. We operationalized the notion of activism by using six self-reported behaviors considered to be generally representative of activists' behaviors. These behaviors are (a) participating in events organized by ecological groups, (b) circulating a petition demanding an improvement of government policies regarding the environment, (c) participating in protests against current environmental conditions, (d) helping to financially support an ecological group, (e) voting for a government proposing environmentally conscious policies, and (O) and writing letters to companies that manufacture harmful products.

In sum, we propose to test a model of activists' behaviors in which the level of autonomous motivation should predict people's perceived importance of problems in their environment, people's perception of the responsibility of various organizations to prevent health risks, and the amount of information concerning health risks and health issues people obtain from different sources of information. In turn, people's perception of the importance of problems in their environment, people's perception of the responsibility of various organizations to prevent health risks, and the amount of information concerning health risks and health issues people obtain from various sources should predict the level of perceived health risks. Finally, the perceived health risks associated with the environmental conditions should predict environmental activism.

METHOD

Participants

A sample of 733 residents of the Cornwall area (Ontario, Canada) participated in the study. The sample included 496 men and 237 women. The average age of the participants was 49 years, with a range of 14 to 92 years: 8% were 30 years old or younger, 68% were between 30 and 60 years of age, and the remaining 24% were older than 60 years. Close to 70% of the respondents were married; 14% were divorced, separated, or widowed; approximately 9% were single; and 98% had children (an average of 2 children). Close to 44% of the participants had a high school education, and 54% had at least some college or university education. The average annual income was about \$30,000 (76% were between \$15,000 and \$100,000). Finally, 15% of the participants lived in the country, 8% lived in a suburban region, and 76% lived in the city.

Procedure

Data were obtained from a questionnaire package mailed to 3,000 residents of the Cornwall area, who were randomly selected from a telephone list of the region. Questionnaires were mailed to these individuals without any prior contact. The questionnaire was introduced as part of a major multidisciplinary research program on the recovery of the St. Lawrence river ecosystem (Pelletier, Hunsley, Green-Demers, & Legault, 1996). Participation involved completing and returning the questionnaire in a prestamped envelope. The questionnaire assessed subjects' environmental attitudes and behaviors. Participation in the study was voluntary, and responses were anonymous and confidential. To ensure a maximum of returned questionnaires, a postcard asking the participants for their cooperation in completing the survey was mailed a week after the questionnaire was sent. The return rate of completed questionnaires was 24.4%.

Measures

The Motivation Toward the Environment Scale (MTES) (Pelletier, Tuson, Green-Demers, Noels, & Beaton, in press). This scale is composed of 24 items designed to represent the motivational constructs identified by Deci and Ryan (1985). The MTES consists of 6 subscales (4 items each), which measure an individual's level of motivation for environmental behaviors. These constructs

are the following, from most autonomous to least autonomous: intrinsic motivation (IM: e.g., "for the pleasure I get from contributing to the environment"), extrinsic motivation by integrated regulation (INTEG: e.g., "because being environmentally conscious has become a fundamental part of who I am"), extrinsic motivation by identified regulation (IDEN: e.g., "because it is a sensible thing to do in order to improve the environment"), extrinsic motivation by introjected regulation (INTRO: e.g., "because I would feel guilty if I did not"), external regulation (ER: e.g., "because my friends insist that I do it"), and amotivation (AMO: e.g., "I don't really know; I can't see what I'm getting out of it"). For the purpose of this study, an RAI, which is the combined score of each of the six subscales was computed in the following way:

$$(3 \times \text{IM}) + (2 \times \text{INTEG}) + (\text{IDEN}) - (\text{INTRO}) - (2 \times \text{ER}) - (3 \times \text{AMO}).$$

(For more information on the RAI, see Blais, Sabourin, Boucher, & Vallerand, 1990; Green-Demers et al., 1997; Vallerand, 1997). This index assesses an individual's general level of self-determination. Participants had to answer each item on a 7-point scale, ranging from 1 (does not correspond at all) to 7 (corresponds exactly).

The MTES possesses very acceptable levels of reliability and validity. In terms of reliability, the MTES subscales showed satisfactory test-retest reliability over a 5-week period, ranging from .63 to .79, and high levels of internal consistency, ranging from .78 to .93 for Time 1 and .88 to .96 for Time 2. In terms of validity, the results of both exploratory and confirmatory factor analysis supported the structure of the scale. Factor loadings for the exploratory factor analysis are satisfactory and range from .36 to .97. Factor loadings for the confirmatory factor analysis range from .41 to .94. Also, correlations between the subscales and between the subscales and various related constructs supported the continuum of self-determination proposed by Deci and Ryan (1985).

Information concerning health risks and health issues (Pelletier et al., 1996) is composed of 11 items. Each item represents a different source of information on health (e.g., medical doctors; university scientists; public interest groups or environmental groups). Participants had to indicate how much information they were obtaining from each of these sources on a 7-point Likert-type scale, ranging from 1 (almost no information) to 7 (a lot of information). A low composite score on this scale indicates that individuals obtain, in general, little information from those various sources, whereas a high composite score indicates that individuals obtain, in general, a lot of information from those sources ([Alpha] = .85).

Perceived importance of problems in the local environment. A list of 19 items about possible problems in the local area was created. The items were created following a survey of experts in biology, geography, economy, chemistry, and hydrology involved in the "Recovery of The St. Lawrence" research project (Needham & Novakowski, 1996). These experts were asked to identify problems related to the condition of the environment in the region (e.g., air pollution from automobile emissions, water pollution by industries, reduced population of game mammal species such as rabbits and deer, reduced population of reptiles such as snakes and turtles). Participants had to evaluate the importance of each problem (item) on a 7-point Likert-type scale, ranging from 1 (not at all important) to 7 (very important). A low composite score on this scale indicates that individuals find, in general, that various problems in the environment are not important, whereas a high composite score indicates that individuals find, in general, that various problems in the environment are very important ([Alpha] = .93).

Responsibility to prevent health risks (Pelletier et al., 1996) is composed of 9 items. Each item represents the level of responsibility of a specific organization (e.g., municipal or provincial government, private industry) to inform the public about environmental health issues and about the prevention of health risks. Participants had to assess the perceived level of responsibility of each organization on a 7-point Likert-type scale, ranging from 1 (no responsibility) to 7 (major

responsibility). A low composite score on this scale indicates that individuals find, in general, that various organizations have little responsibility to prevent health risks, whereas a high composite score indicates that individuals find, in general, that various organizations have a major responsibility to prevent health risks ([Alpha] = .86).

Perceptions of health risks (Pelletier et al., 1996) is composed of 21 items. Each item represents a health threat related to environmental conditions (e.g., nuclear waste, fish caught in the St. Lawrence river, outdoor air quality, bacteria in food). Participants had to answer each item on a 7-point Likert-type scale, ranging from 1 (almost no health risk) to 7 (high health risk). A low composite score on this scale indicates that individuals, in general, perceive few health risks from various environmental conditions, whereas a high composite score indicates that individuals perceive high health risks from various environmental conditions ([Alpha] = .93).

The Activism Scale. This scale was specifically developed for the purpose of this study. The items were constructed based on interviews conducted with individuals involved in activists groups and the literature on activism (Edwards & Oskamp, 1992; Herrera, 1992; Huebner & Lipsey, 1981; Manzo & Weinstein, 1987; Sherkat & Blocker, 1993; Walsh & Warland, 1983). This scale is composed of the following 6 items, each representing a particular behavior related to environmental activism: (a) participation in events organized by ecological groups, (b) financial support of an environmental group, (c) circulation of a petition demanding an improvement of government policies regarding the environment, (d) participation in protests against current environmental conditions, (e) voting for a government proposing environmentally conscious policies, and (f) writing of letters to firms that manufacture harmful products. Participants had to indicate the extent to which they were doing these behaviors by answering each item on a 7-point Likert-type scale, ranging from 1 (not very often) to 7 (very often) ([Alpha] = .80).

RESULTS

Preliminary Analyses

Because of the nature of the study (environmental attitudes), there is the possibility that only the most involved individuals would respond. To verify the normality of the sample, we first conducted analyses to identify the presence of univariate and multivariate outliers. Out of the 733 cases available, only 13 cases with z scores greater than 3 in absolute value were identified, that is, less than 2%. Tabachnick and Fidell (1996) suggest that less than 5% of univariate outliers are to be expected by chance and acceptable in a normal sample. We then verified the presence of multivariate outliers. Standardized residuals, Mahalanobis distances, leverages, and Cook's (1993) distances were all acceptable. With the use of a p [is less than] .001 criterion for Mahalanobis distance, only 17 outliers among the cases were found, that is, 2% of cases when 5% was acceptable. The mean value for leverage was smaller than the critical value of .05, and the maximum value for Cook's distance was much smaller than the critical value of 1 (Hamilton, 1992). In short, our sample appears normal with respect to univariate and multivariate outliers.

Inspection of correlations and tolerance among independent variables revealed low-to-moderate zero-order correlations ranging from .15 to .52 (all correlations [is less than or equal to] .60) and high level of tolerance ranging from .67 to .89, suggesting the absence of multicollinearity or singularity among the independent variables.

Activists' Behaviors in the Sample

The mean for the combined score of the 6 items of the Activism Scale is quite low ($M = 1.91$, $SD = .92$), indicating that the majority of individuals are not engaged in activists' behaviors. Looking at the items of the scale individually, the activist's behavior with the highest mean for our sample was voting for a government proposing environmentally conscious policies ($M = 3.58$, $SD =$

2.05). In turn, participating in protests against current environmental conditions and writing letters to firms that manufacture harmful products received the lowest mean rating of all activists' behaviors measured ($M = 1.56$, $SD = .87$ and $M = 1.37$, $SD = 1.01$, respectively). Participating in events organized by ecological groups ($M = 1.46$, $SD = .99$), circulating a petition demanding an improvement of government policies regarding the environment ($M = 1.87$, $SD = 1.34$), and helping support financially an ecological group ($M = 2.03$, $SD = 1.49$) are activists' behaviors that received intermediate ratings. Finally, an exploratory factor analysis (based on maximum likelihood extraction procedure with oblimin rotation) performed on the items of the Activism Scale revealed the presence of only one factor with an eigenvalue greater than 1. All items loaded significantly on this unique factor (factor loadings [is greater than or equal to] .30), which suggests that the Activism Scale is unidimensional.

Despite those generally low rates of activism, a subsample of activists could be identified. Two groups (activists, $n = 71$, and nonactivists, $n = 638$) were created on the basis of subjects' responses to the Activism Scale, using the mean of the 6 items. Individuals with a mean score less than 4 (in a possible range of 1 to 7) were identified as nonactivists, and individuals with a mean score of 4 and greater were identified as activists. A series of t tests were performed to compare the group means on the variables included in this study. The means for both groups are presented in Table 1.

TABLE 1
Means Differences Between Activists and Nonactivists

	Activists	Nonactivists
Perceived Importance of Problems in the Environment(**)	6.07	5.65
Information(**)	4.05	3.54
News media (TV, newspaper)	5.47	5.59
Private industry(**)	2.79	2.29
Medical doctors	3.62	3.27
Municipal government(**)	3.70	3.01
Provincial government(**)	3.93	3.28
Health and Welfare Canada(**)	4.08	3.52
Environment Canada(**)	4.56	4.09
Agriculture Canada(**)	3.97	3.44
Public interest groups or environmental groups(**)	5.05	4.13
University scientists(**)	3.59	2.94
Friends and relatives(**)	3.76	3.31
Responsibility to prevent health risks	5.73	5.69
Municipal or provincial government	5.58	5.91
Individual citizens with regard to their personal health	6.01	5.97
Medical doctors	5.71	5.60
Other health professionals (nurses, lab technicians)	5.46	5.08
Health and Welfare Canada	6.06	6.07
Environment Canada	6.06	6.07
Agriculture Canada	5.87	5.81
Private industry	5.36	5.62
Public interest groups or environmental groups(*)	5.46	5.01
Perception of health risks(**)	5.34	4.92
Level of autonomous motivation(*)	2.80	2.38

(*) p [is less than] .05. (**) p [is less than] .01.

First, activists differed significantly from nonactivists on the measure of the RAI ($t(586) = 1.95$, p [is less than] .05). This difference was such that activists were found to be more autonomous toward the environment than were nonactivists. Second, activists, compared to nonactivists,

indicated that possible problems in their environment are more important ($t(658) = -2.41$, p [is less than] .05). Environmental issues such as air pollution from automobile emissions; water pollution by industries; loss or degradation of rare habitats; and reduced populations of bird, mammal, fish, reptiles, amphibians, and insects are considered significantly more important by activists.

When considering the combined score of the 11 items of the information concerning health risks and health issues scale, activists indicated that they were obtaining a greater amount of information from different sources ($t(664) = -4.57$, p [is less than] .01), with the exception of the information that comes from the news media ($t(677) = .72$, $p = .471$), and from medical doctors ($t(679) = -1.82$, $p = .068$), for which no difference was found between the two groups. When considering the combined score of the 9 items of the responsibility to prevent health risks scale, no difference was found between activists and nonactivists on their perception of the responsibility of different organizations to prevent health risks ($t(681) = -.32$, $p = .748$). However, when considering the items independently, the only significant difference between activists and nonactivists was found in their perception of responsibility to prevent health risks from public interest groups or from environmental groups, ($t(696) = -2.17$, p [is less than] .05).

Finally, when considering the measure of the perception of health-risks scale, activists perceived more health risks related to their environmental conditions ($t(617) = -2.61$, p [is less than] .01) than did nonactivists. Possible environmental health threats, such as nuclear waste, outdoor air quality, bacteria in food, or use of genetically engineered bacteria in agriculture were perceived by activists as posing a greater risk to their health.

Test of the Model

The predictive model of activism was statistically tested by means of a recursive path analyses using multiple regression (Pedhazur, 1982). All the regressions were conducted with the complete Activism Scale (6 items). The model is presented in Figure 2. In the first multiple regression analysis, 5 predictors (the RAI, the amount of information concerning health risks and health issues obtained from various sources, the perception of responsibility of different organizations to prevent health risks, the perceived importance of problems in the environment, and the perception of health risks related to environmental conditions) were entered to identify which variables would predict activists' behaviors. The only predictor that revealed significant linkage with activists' behaviors was the perception of health risks. We conducted a second multiple regression similar to the first one, but only with the significant predictor (i.e., perception of health risks). This analysis revealed a beta weight of .13. This equation explained 2% of the variance in activists' behaviors.

[Figure 2 ILLUSTRATION OMITTED]

In a third multiple regression, 4 predictors (the RAI, the amount of information concerning health risks and health issues obtained from various sources, the perception of responsibility of different organizations to prevent health risks, and the perceived importance of problems in the environment) were entered to identify which variables would predict the perception of health risks. Three predictors were significant: the responsibility to prevent health risks, the perceived importance of problems in the environment, and the information concerning health risks and health issues. Another multiple regression conducted only with those three significant predictors revealed beta weights of .11, .45, and .17, respectively. This equation explained 30% of the variance in perception of health risks.

As a final step, three more regressions were done to verify if the level of autonomous motivation would be a significant predictor of each of the mediating variables (the responsibility to prevent health risks, the perceived importance of problems in the environment, and the information concerning health risks and health issues). The RAI was a significant predictor for the three

variables (the beta weights were .21, .31, and .16, respectively). These equations explained 5%, 9%, and 2% of the variance in the responsibility to prevent health risks, the perceived importance of problems in the environment, and the information concerning health risks, respectively.

In sum, the sequence proposed in our model was supported. The RAI predicted the perceived importance of problems in the local environment, the perception of responsibility of various organizations to prevent health risks and the amount of information concerning health risks and health issues obtained from different sources of information. In turn, the perceived importance of problems in the local environment, the perception of the responsibility of various organizations to prevent health risks, and the amount of information concerning health risks and health issues obtained from various sources predicted the perception of health risks. Finally, the perceived health risks associated with the environmental conditions was the predictor most closely linked to environmental activism.

DISCUSSION

Environmental activists are people who are committed to their environment. They work hard to change or improve the quality of their local environment. In this study, we operationalized the notion of activism using six self-reported behaviors that best represent activists' behaviors according to individuals involved in activists groups and the literature on environmental activism. Although relevant literature (see Brulle, 1996) identifies different types of environmental organizations composed of different kinds of environmental activists, the purpose of the present study was to develop a global measure of environmental activism. We also tried to understand how different determinants were associated with environmental activism in general. Although many factors have been associated with activists' behaviors in past studies, those variables have never been integrated in one model. In the proposed model of activists' behaviors, we chose to focus our attention on five possible determinants of environmental activism, namely, the perception of environmental health risks, the amount of information concerning health risks and health issues, the perceived importance of problems in the local environment, the perceived responsibility of different organizations to prevent health risks, and the level of autonomous motivation.

The results show that the Activism Scale is an acceptable global measure of environmental activism. The six self-reported behaviors composing the scale form a well-defined concept as revealed by the scale's acceptable level of internal consistency ($[\text{Alpha}] = .80$) and the unidimensionality of the scale. The low mean for the combined items of the scale ($M = 1.91$) express, as expected, the very low rate of activists' behaviors in the general population. This result is consistent with the literature on environmental activism.

We were also able to distinguish the larger population of nonactivists from activists on the basis of their perception of the importance of possible problems in their, local environment, the amount of information they obtain from various sources, their perception of the responsibility of different organizations to prevent health risks, their perception of health risks related to their environmental conditions, and their level of autonomous motivation. According to our results, the picture of a typical activist is one of an individual who perceives as more important various possible problems in the environment such as the quality of the air, the level of pollution from automobiles and industries, and the degradation of animals' habitats. Activists are also more sensitive to information on health risks, health issues, and the conditions of the environment. Furthermore, activists feel that organizations such as public interest groups or environmental groups have the responsibility to protect people from health risks, and they perceive more health risks related to environmental conditions. In conclusion, we would say that activists possess a high level of autonomy toward the environment.

Finally, the proposed model of environmental activism was supported with our cross-sectional

data. The level of autonomous motivation was not related directly to activists' behaviors. Instead, the level of autonomy toward the environment was found to be a source variable in the model. In fact, the more individuals were autonomous toward the environment, the more they became sensitive to information concerning health risks and health issues, to possible problems in their local environment, and to the responsibility of different organizations to prevent health risks. In turn, the more individuals became sensitive to information about environmental health risks, and about possible problems in their local environment, the higher were their level of perceived health risks associated with environmental conditions. In the same vein, the more individuals perceived that various organizations had responsibilities to prevent health risks, the higher were their perceptions of risks to their health present in the environment. Finally, the more individuals perceived health risks in the environment, the more they were active in protecting their environment. The fact that the perceptions of health risks was the predictor most closely linked to environmental activism is consistent with prior research. This kind of relationship between perceptions of risks and various environmental behaviors has been reported in past research (for an overview, see Kunreuther & Slovic, 1996).

An interesting finding of this study pertains to the role of autonomous motivation as an indirect determinant of environmental activism. Although activists' behaviors could be increased by targeting any one of the determinants in the model, increasing an individual's autonomous motivation should affect all the other variables in the model. Deci and Ryan (1985, 1987) suggested that an individual's level of autonomous motivation, in turn, could be increased in a number of different ways. For example, offering choices to individuals and involving them in decision-making processes are known to increase an individual's autonomy. Specifically, in the environmental domain, offering choices of recycling methods to individuals or involving individuals in decisions that have significant implications for the environment should increase the individual's autonomy toward the environment.

The work of Stern and colleagues (Stern & Dietz, 1994; Stern et al. 1993; Stern et al., 1995) on the influence of an individual's value orientation on environmental activism, could also shed some light on what other factors could affect the level of autonomous motivation toward the environment. As mentioned previously, the concept of values affecting an individual's behavioral intentions is very similar to environmental behaviors performed because they are consistent with one's values. This represents one type of autonomous motive (extrinsic motivation by identified regulation) identified by Deci and Ryan (1985, 1987). Consequently, factors influencing an individual's values toward the environment could also affect the individual's level of autonomous motivation toward the environment.

Another interesting finding of this study concerns the relation between the perception of the responsibility to prevent health risks and the perception of health risks. Stern et al. (1985) found that in the case of the government or governmental organizations, people ascribe them a moral obligation to resolve community problems, including environmental problems. As described earlier, the more people perceive that different organizations have the responsibility or moral obligation to protect them from health risks, the more they will perceive health risks related to the environmental conditions. As suggested previously, we believe that this relation comes from a perceived action on the part of the organizations responsible to prevent health risks. If people perceive that the organizations are actually taking their responsibilities by trying to protect them against health risks, this perceived action will presuppose risks in the environment.

Despite a well-operationalized global notion of environmental activism and the fact that a satisfactory model of activists' behaviors was proposed and tested, this model is certainly not exhaustive, as indicated by the very low proportion of variance explained in predicting environmental activism. However, it should be noted that testing our proposed model of activism with cross-sectional data can only indicate whether the model is feasible. Longitudinal designs would be necessary to evaluate the extent to which our model can account for activists' behaviors

and the validity of the specific causal ordering proposed.

We know that a sense of competence is related to the level of autonomy: The more you feel competent in a specific domain of life, the more you should become autonomous in that particular domain (Deci & Ryan, 1985, 1987). Because the level of autonomy was a moderating variable in the proposed model of activists' behaviors, we can hypothesize that a sense of competence toward environmental issues such as conservation or recycling would also be an important predictor of environmental activism. This concept is similar to the concept of personal efficacy, which is the belief that one's actions can lead to change and make a difference. This concept has already been linked to environmental activism (Axelrod & Newton, 1991; Huebner & Lipsey, 1981; Mohai, 1985). In future studies, it could be useful to look at the contribution of a sense of personal efficacy as a significant determinant of environmental activism.

The nature of our sample may restrict the generalizability of our results. The proposed model of environmental activists' behaviors may be applicable specifically to the geographic region from which we sampled. Despite the fact that the sample does not appear to be composed only of very engaged individuals, either proenvironmentalists or antienvironmentalists (no univariate or multivariate outliers were found beyond what can be expected by chance), it would be important to test the validity of the model with a broader population. The low response rate we obtained was not unexpected with this kind of research design, but it nonetheless raises further the question of an unrepresentative sample and the ability to make causal generalizations. Cook (1993) proposes an alternative theory of causal generalization when random sampling of persons is not possible (and it rarely is in field studies). This theory is based on five principles abstracted from research on construct validation. Specifically, Cook proposes that promotion of causal generalization can be done by (a) purposively sampling individuals that fit into the categories for which generalization is wanted and who are not relative outliers to the population to generalize to; (b) making irrelevancies more heterogeneous and stratifying to see if the expected relation holds across irrelevancies; (c) discriminating between the target population and nontarget populations; (d) cross-validating the results; and (e) describing moderating or mediating variables in the causal connection. Four of those five principles are respected in this study. First, we randomly selected the participants, and those who responded were not relative outliers to the rest of the sample; and acceptable levels of variance among the items of the Activism Scale were observed. Then, we made our sample very heterogeneous when we tested the model by combining the small subsample of identified activists ($n = 71$) to the much larger sample of nonactivists ($n = 662$) and then by attempting to predict activists' behaviors. The fact that we were able to explain a small but significant amount of variance in activists' behaviors, in spite of all the noise created by the nonactivists in the sample, suggests that the relation is "strong" because it held despite this heterogeneity. We were also able to discriminate clearly activists from nonactivists on various characteristics. We also included in the model moderating and mediating variables, which represent the components of the cause and the effect. Although the data support our model of activists' behaviors, this model is still correlational in nature and, as we mentioned earlier, was tested with cross-sectional data. We wish to emphasize again, as Cook suggests, that attempts to replicate our model with various populations are essential to reliable causal generalizations. Also, experimental manipulations of the variables in the model would allow us to verify, if we can measure, and actually predict environmental activism. This could be done by increasing people's level of autonomous motivation as suggested earlier, people's perception of the responsibility of different organizations to prevent health risks, people's perceived importance of possible problems in their local environment, or the amount of information people obtain concerning health risks and health issues, or by increasing people's perception of the amount of health risks present in the environment.

Considering the central role that perceived health risks play by being the determinant most closely linked in the sequence to environmental activism, it would be interesting to investigate this variable more thoroughly. In this study, we examined the perceived health risks in a global fashion. Further studies could try to identify different dimensions of health risks in an attempt to better understand

the concept of health risks and its relation to environmental activism. Recent research has shown that perceptions of health risks could be a multidimensional construct (Seguin, Pelletier, & Hunsley, in press). Each possible dimensions of health risks identified in that research (e.g., health risks related to toxic waste, to toxin in fish, to the quality of air and water, and to chemical pollution) could possibly represent a specific determinant of specific activists' behaviors or environmentally conscious behaviors.

In sum, the purpose of this study was to operationalize a general notion of activism and to verify how potential determinants may lead to a better understanding of this construct. Our results suggest that the notion of activism could be better defined by considering multiple indicators representative of the construct. The notion of activism could also be better understood by considering determinants such as the perception of health risks related to the environmental conditions, the perceived responsibility of different organizations to prevent environmental health risks, the perceived importance of possible problems in the local environment, the amount of information people obtain from various sources, and people's level of autonomy with respect to the environment.

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