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RESEARCH ARTICLE

UNDERSTANDING THE DETERMINANTS OF ECOLOGICAL BEHAVIOR OF YOUNG MOROCCANS

***Daadaoui, L. and Saoud, S.**

ENCG, Université Ibn Zohr Morocco

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ABSTRACT

Concern about environmental deterioration is one of the most relevant problems among international community. Morocco had agreed to Kyoto protocol, Paris Agreement, organized the COP22 with an ambitious agenda and NDC program. Morocco is as well engaged in huge investments in solar (NOOR 1, 2, 3), wind and renewable energies. We are interested in this paper in understanding the determinants of the ecological behavior of Moroccan youth. A conceptual framework is proposed based on the literature review and an exploratory study conducted in university based on focus groups (80 students), one-to-one semi-directive interviews (20) and a final focus group with socially engaged students in university clubs (20). Findings of this study showed that environmental attitudes, environmental knowledge are linked to ecological behavior. It emphasized the necessity to include situational influences to the framework and highlight emergent factors for youth like routines (habits), past behaviors and group references.

INTRODUCTION

Morocco had agreed to Kyoto protocol, Paris Agreement, organized the COP22 with an ambitious agenda and NDC program. Morocco is as well engaged in huge investments in solar (NOOR 1, 2, 3) wind and renewable energy. Recently, the Zero Mika campaign had as an aim to reduce and replace the use of plastic bags. The Moroccan institutional commitment for us is not sufficient if the Moroccan behavior pro-environment doesn't follow the institutional and political willing. For this reason we tried to understand and to discover what are the determinant of Moroccans and especially the youth. The human factor is important to take in account. First, because (1) little interest has been given by scientific community especially Moroccan environmental (ecological) behavior. Second, (2) We follow Maloney and Ward (1973), they argued that "we must determine what the population 'knows' regarding ecology, the environment, and pollution; how they feel about it; what commitments they are willing to make, and what commitments they do make". In this article our aim is to discover and understand the drivers and barriers for the individual ecological behavior (EB). We will achieve this goal using an exploratory approach based on literature review and interviews with student's community. This is work is a part of a project called "L'effet papillon" to help cultivating the think/act ecologically within the student community in our university (Daadaoui, Saoud and Mahani, COP22/2016, COP23/2017).

Corresponding author: **Daadaoui, L.**
ENCG, Université Ibn Zohr Morocco

What determines an individual's ecological behavior and how can behavior be changed in a more ecological direction (Kaiser *et al.,* 1999). Studying the predictors and difficulties of ecological behavior would help to establish effective policies and programs for community or society as effective measures to enhance ecological behaviors can be adopted by other communities and societies as well, which results in a less arbitrary and vague adoption process of political measures.

Literature Review

Ecological behavior

Axelrod and Lehman (1993) defined general ecological behavior as "all those actions, which contribute to the preservation and/ or conservation of the environment." There is a large amount of manifestations it involved: buying, use, consumption, reuse, recycling, willingness to pay more for ecological products; environmental worry, etc. Granzin and Olsen (1991) assessed that behavior by the donation of products for reuse and recycling. Other authors considered diverse activities for the conservation of natural resources and the environmental concern as different ecological conducts (Kotchen and Reiling, 2000; Laroche *et al.,*2001).

Due to these different environmental manifestations, it sometimes emphasized to talk about a broad ecological behavior concept rather than a specific environmental action or behavior (Kaiser, 1998; Kaiser and Wilson, 2000).

Intrinsic, individual, psychological drivers

We identified different components:

- Attitude toward environment

We find three perspectives to study this relationship in the literature. The first one analyses the relation between attitude and a general ecological behavior (e.g., recycling) (Hines *et al.,*1986/87; Kaiser, Ranney *et al.,*1999; Kaiser *et al.,*1999). The second perspective studies the attitudes towards the environment and its elements (air and water quality) (Maloney *et al.,*1975). And the third one deals with the New Ecological Paradigm (Dunlap and Van Liere, 1978; Kotchen and Reiling, 2000). The third one refers to the nature's balance and the possibility of an ecological catastrophe, so it lies outside our objective. Three environmental attitude components were used to predict ecological behavior: *affect* (feelings), *Cognition* (knowledge) and *conative* (intention). These predictors were used in parallel in the same framework or as a single indicator (Newhouse, 1990). It is important here to note as (Hamid and Cheng, 1995 ; Sheppard, Hartwick and Warshaw, 1988) that the researchers have concluded that although the mediating factors between general attitudes and specific behavior are complex, predicting behavior from affective and cognitive predispositions is viable and can be informative in identifying where and how to target strategies for changing behavior.

Knowledge

Politicians, environmental activists, and people in general who aspire to foster a less polluted environment and promote the sustainable use of natural resources, assume that behavior changes as a function of knowledge. Knowledge is an important and highly significant predictor of ecological behavior. Kaiser and Fuhrer (2003) present a typology of knowledge: declarative (What?), procedural (how?), effectiveness (how much?), social (who do?), to understand exactly the scope of the influence of knowledge on EB. They argued that these ifferent forms of knowledge have to converge towards the common ecological goal. Hence, it is not the mere amount of knowledge available that determines ecological behavior, but the strength of the convergence of this knowledge.

Perceived control

In the ecological domain, different concepts of perceived control (Levenson, 1974; Berger and Corbin, 1992; Grob, 199) are used; for instance, internal locus of control (Arbuthnot, 1977; Huebner and Lipsey, 1981; Hines *et al*., 1986; Oskamp *et al*., 1991; Gamba and Oskamp, 1994; Smith-Sebasto and Fortner, 1994), self-efficacy (Kantola *et al*., 1983; Axelrod and Lehman, 1993) And feelings of powerlessness (Busch-Rossnagel and Weigel, 1984. Perceived behavioral control is our perception of how easy or difficult it is for us to perform the behavior (Ajzen and Madden, 1986, Madden, Ellen and Ajzen, 1992). Locus of control (Rotter, 1966) is a measure of an individual's expectations of his or her behavior bringing about change, and it appears to be particularly relevant here. People with an external locus of control are less apt to believe in bringing about large-sclae change. However, those with internal locus of control believe that their actions matter. It is used are predictor of either ecological behaviour (Levenson, 1974 ; Arbuthnot, 1977; Hines *et al.,*1986 ; Oskamp *et al.,*1991; Axelrod and Lehman, 1993; Gamba and Oskamp, 1994; Grob, 1995) or ecological behavior intention (Huebner and Lipsey, 1981 ; Sherman *et al.,*1981; Kantola *et al.,*1983).

Responsibility toward environment

Some findings attest to the significance of responsibility as a promising predictor of ecological behaviour (Arbuthnot, 1977; Kantola *et al.,*1983; Hines *et al*., 1986/87; Granzin and Olsen, 1991; Fridgen, 1994; Kals, 1996). However, people can feel responsible in at least two ways (Kaiser, 1996): one way refers to morality and the other to conformity to social expectations or conventions. *Moral responsibility* feelings are related to moral concepts such as the welfare and rights of others, and fairness considerations, *conventional responsibility* feelings are grounded in social customs or traditions and appeals to authorities.

Personality traits

Personal characteristics also have been found to relate to environmental behavior like: affect, verbal and actual commitment (Maloney and Ward, 1973), cross-cultural differences (Arbuthnot and Lingg, 1975), technology orientation, legalism self esteem. People with pro-social values are likely to have a pro-environmental behavior. Arbuthnot (1977) findings are interesting in this way. People who are more liberal-minded, more flexible in their behaviors and beliefs, less traditionally oriented (Arbuthnot, 1977), altruist and people committed to their community (Geller, 1995) are more likely to respond behaviorally to the need for pro-environmental commitment.

Social and moral values regarding environment

Such social norms are grounded on two distinct domains of social thinking, a moral one and a conventional one (Turiel, 1985 cited by Kaiser and *al.* 1999), which results in two distinguishable types of social norms, moral and conventional. *Conventional social norms,* such as subjective norms within the theory of reasoned action (Ajzen and Fishbein, 1980), are grounded in social customs or traditions, appeals to authority, and the need for social approval. It consists of perceptions of how people who are important to us believe we ought to behave. *Moral social norms* derive from prescriptive "self-referential standards" (Lantermann *et al.,* 1992), from concepts such as the welfare and rights of others, fairness and justice (Turiel, 1985). Both forms of social norms, moral and conventional, are seen as crucial for ecological behavior: while some studies emphasize moral considerations (Hopper and Nielsen, 1991; Howe, Kahn, and Friedman, 1996; Kahn and Friedman, 1995; Van Liere and Dunlap, 1978; Vining and Ebreo, 1992) other research indicates that conventional social norms are also capable of bringing about ecological behavior (Hornik, Cherian, Madansky, and Narayana, 1995).

Individual situational influences

Finally, a selection of moderators used that affect the environmental attitude ecological behavior relationship could include gender, socio-economic status (Midden and Ritsema,

1983), mode of behavior assessment (Hines *et al.,* 1986), group membership environmentalists *vs* non-environmentalists (Hines *et al.*, 1986; Lynne and Rola, 1988), access to recycling programs (Derksen and Gartrell, 1993), season (Becker *et al.,*1981) and nationality (Meseke, 1994). All these moderators represent different sorts of non-volitional, socio-cultural behavior constraints at an individual level. Usually, questions concerning their scope remain unanswered: do they affect all or just a few ecological behaviors? (Kaiser *et al.,* 1999). Two demographic factors that have been found to influence environmental attitude and pro-environmental behavior are gender and years of education.

Extrinsic, Situational, Non-psychological influences

Ecological behavior appears to be susceptible to a wide range of influences beyond one's control (Hines *et al*., 1986), Outside temperature (Olsen, 1981) and home characteristics (Verhallen and Van Raaij, 1981), for instance, affect energy consumption; cost of water affects water conservation (Moore *et al*., 1994), and the number of people in a given household (Gamba and Oskamp, 1994), house ownership (Lansana, 1992), storage space (Williams, 1991) and type of residence (Oskamp *et al*., 1991) affect recycling behavior. Examples of community or neighbor hood-related influences include political measures that support public transportation systems that provide an alternative to commuting by automobiles, or political measures that facilitate recycling or force people to pay for garbage disposal, which further reduces waste generation and promotes recycling. Situations create either opportunities for or constraints to ecological behavior (Becker, Seligman, Fazio, and Darley, 1981; Guagnano, Stern, and Dietz, 1995; Hornik *et al*., 1995; Taylor and Todd, 1995; Verhallen and Van Raaij, 1981). For example, recycling opportunities determine the range of recycling behaviors (Derksen and Gartrell, 1993; Gamba and Oskamp, 1994).

Yet, the more powerful a situation is, the less influential psychological factors such as knowledge appear to be (Guagnano *et al*., 1995). In short, socio-cultural constraints determine, *to some extent, which ecological behavior is easier to carry out and which is harder*. As a consequence, people appear to behave inconsistently, since even someone who claims to be ecologically oriented may behave ecologically in one domain and unecologically in another (Oskamp *et al.,* 1991; Vining and Ebreo, 1992; Pickett *et al.,* 1993; Scott and Willits, 1994). Kaiser *et al.* (1999) deplore the lack of consideration of behavior constraints beyond people's control.

Thus, situational factors include:

Institutional factors

The existence of necessary infrastructure is important to encourage ecological behaviors provided for example: recycling, using public transportation, garbage sorting, responsible consumption, etc. The poorer such services are the less likely people are to use them (Kollmuss and Agyeman, 2002). But, they argued: "*these institutional barriers can be overcome primarily through people's actions as citizens (indirect environmental actions)"*. In this vain, it is important to explore how exactly (the scope) attitude toward environment influences (indirect) environmental action.

Economic factors

Economic factors have a strong influence on people's decisions and behavior. Nevertheless, they are very complex and only poorly understood. It's agreed now, that the homo-economicus is not true. People can be influenced by economic incentives to behave pro-environmentally. The opposite is also true. Until recently, very low prices for gas in the Morocco prevented farmers from choosing solar energy pumping (Kollmuss and Agyeman, 2002). Economic factors are very important when designing new policies and strategies that are meant to influence and change people's behavior. Nevertheless, predicting people's behavior on purely economic grounds will not reveal the whole picture.

Socio-cultural factors

Cultural norms and socio-cultural pressures and opportunities to choose different actions (Hines *et al.,1986*) play a very important role in shaping people's behavior. It would be very interesting to design a cross-cultural study that looks at pro-environmental behavior. One could ask if there is a profile of ecological behavior depending on cultural characteristics. We would hypothesize that cultures in small, highly populated countries such as Switzerland and the Netherlands tend to be more resource conscientious than societies in large, resource-rich countries such as the USA/CANADA, or between Muslim countries and others, etc. From the literature review, we highlighted a lot of factors (Figure 1) that influence the individual behavior toward ecology. It will be interesting to examine those that shape the Moroccan Youth.

Moroccan youth case

In this first step of our research, and before evaluate, we want to discover the factors that influence the young Moroccans ecological behavior.

Methods and procedure

The present sample was constituted from 110 students of a business school. To include as much diversity as possible, we tried to have female, male, graduate and undergraduate, from urban and rural areas. We engaged a first step, using focus group technic was done to understand and find first. This was done using an interview guide with broad questions about: climate change and its consequences, ecology, ecological behaviors, renewable energies, different solutions etc. Then, a second step consisted on semi-directive interviews with 20 students. Finally, the results and variables that emerged were confirmed via a focus group within 20 students engaged in social activities in the university (university clubs as a vector of ecological culture, Daadaoui, Saoud and Mahani, 2017).

Analysis and discussion

We will discuss here the findings of this first step on our research. We will do this on two blocks.

Intrinsic factors

Attitude toward environment

Three concepts, environmental knowledge, environmental values and ecological behavior intention, were suggested as the

conceptual skeleton of the theory of planned behavior (cited by Kaiser *et al.,*1999). We find the same predictors for the Moroccan youth ecological behavior.

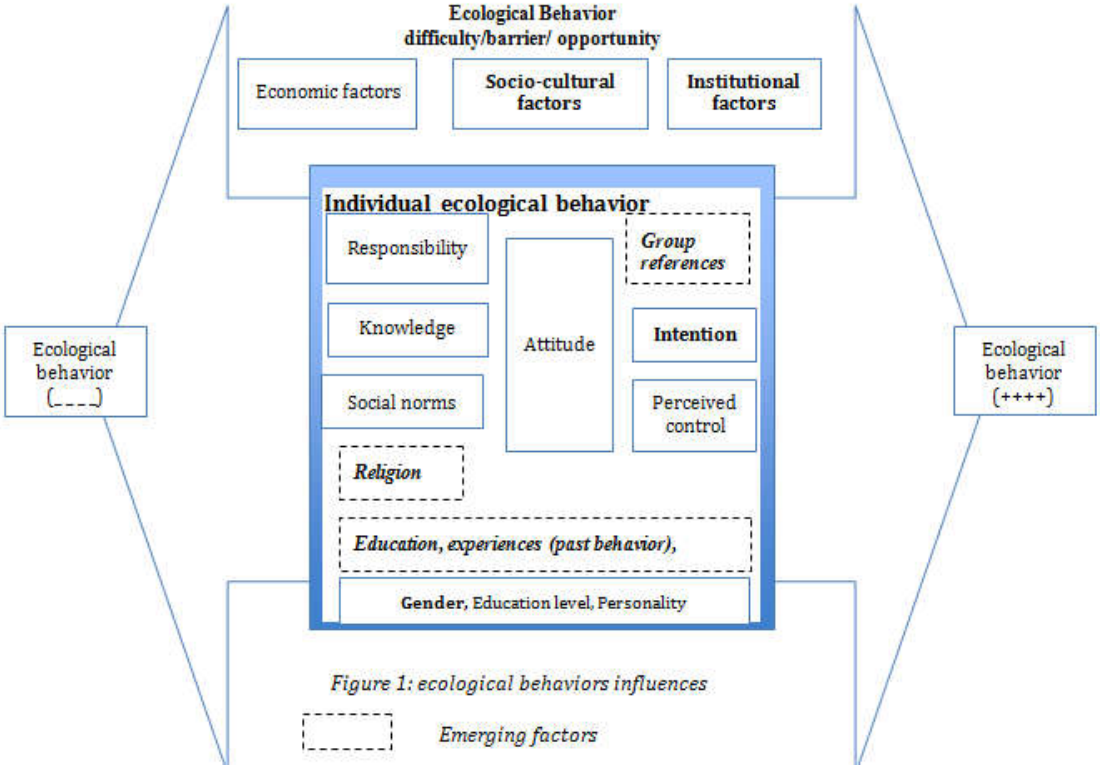

Figure 1: ecological behaviors influences

Knowledge: As it was pointed by the literature review « knowing or not knowing » is a key factor that influence the ability of doing.

"You know we do not know a lot about the subject!"
"When you do not know about do not do it!"
"Uh! Now that you say it (...) yes it is feasible! "
"(...) I did not know, it could influence !! "

We find a huge lack in the student community of knowledge and information about environment. Using the nomenclature of Kaiser and Fuhrer (2003), the three types of knowledge were missed. Student do not know anything (or little things) about:

Environmental knowledge: general knowledge about environment and climate, threats, causes, consequences (declarative type).

Knowledge of ecological behaviors: solutions, alternatives, how all these could be implemented (procedural type).

Knowledge of others behavior: what others are doing and what they are not doing and their intentions (social type).

Is it sufficient to be knowledged to act ecologicall? We believe it is not sufficient, other factors are very important in acting this knowledge. It will be interesting to understand the dynamic of knowledge on the behavior. What are the origins of this lack of knowledge and what are the best canals to evacuate this knowledge ?

Social norms

Conventional social norms seem to have a great influence in ecological behavior of young people as a barrier or booster. Morocco is a traditional and conservator society very linked to tradition even it's modernity that we could see.

Traditions and customs but also religion play a great role in shaping the behavior. We have two things : (1) the social norm is environment-careless which constitute a negative pressure and barrier for EB.

"The social norm is the lack of respect for the environment"; "... when you make a gesture (...) you risk being the laughing stock of people"
"No one cares about environment issue"

(2) Even the precepts of Islamic religion are emphasizing the necessity of respecting the nature, the animals and to take care of them, and even they know them and they bring them as arguments to have a pro-environment thinking and awareness but they are not sufficient to go through an ecological behavior (influencing intention!?). This is interesting to test later. *Concerning moral social norms*, it was interesting to note that students do not put moral principles as priorities. Their own and personal priorities go first (which very human). We assume that when pro-environmental behaviors are in alignment with these personal priorities, the motivation to do them increases. If they contradict the priorities, the actions will less likely be taken.

Responsibility and perceived control

It was interesting to note that the interviewees associated always the "responsibility" and their self-efficacy and power toward environment.

"I'm co-responsible to a certain extent but I can not do anything"

They also distinguish different level of responsibility: macro level and immediate environment. For the first, "*I'm not*

responsible and I can not do anything!" For the latter, "*I am co-responsible and I can to some extent do*".

In the context of young Moroccans, it was obvious that we are more in external locus of control, all them feel that they all this doesn't depend on them and their wiliness. They believe that the state must do more effort to offer them the infrastructure necessary to have an ecological behavior but when we told them other possible things to do (like reusing, reduce our consumption, don't use a lot wrapped products etc.) they said that they don't know about that. We have here an assumption that there is a relationship between locus of control and knowledge.

Personality

The students already involved in an altruistic and pro-social activities, who are very engaged with their classmates were more inclined to have more *knowledge* about environment and was more interested by pro-environment behavior.

"… I must say that I was always sensitive to everything around me!

Emerging predictors

Education, experiences (past behavior), routine behaviors

Childhood experiences in nature, in pro-environmental actions and activities were more inclined to have more knowledge about environment and an ecological behavior. Two things are here important to point out: education and past behavior (experience) as emerging predictors.

Education might have a powerful role (to verify) in gaining behavioral commitments. The purpose here is to perform effective educational programs and to appeal for pro-environmental actions by efficient targeting.

"I was a member of an association for the environment …"
"When I was kid, in my school, we used to organize cleaning days and recycling days"

Routines and habits could be a good predictor for EB especially for specific ones: consumption, recycling, transportation for instance. This point joins the education and past behavior. We believe the more we act for environment daily, we will more likely to act ecologically.

"We did not get used to doing (...) it's just that!"
"... I usually use an insecticide, I do not try to replace it!"

Reference groups / Influencers

Reference groups persons could be a good predictor of EB. Especially for young people and for some specific behaviors. These influencers could be : professors, family, friends, idols, youtubers, etc.

"If we saw others (close persons) do, we will do!"
"... You know us young people, we identify easily with our idols"
"If our parents and close friends do this, we will certainly do it"

Extrinsic factors

Institutional factors: For all the steps of our study, this factor was significant. For our interviewees, if the pro-environment behavior is not developed yet in Morocco, it is because of the institutional lack of politics and incentives.

"(...) I want to ride a bike, but where? "
« How we could recycle if there is no recycling and sorting baskets … »

Three dimensions appear in this sense: (1) *Positive role:* via incentives, for example, financing, tax credit, infrastructure, etc. (2) *Coercive role:* on sanctioning non ecological actions, toughen environmental legislation. (3) The continuous collective uprising and cause reminder: it is very influencing that the state organize great events, propagandas periodically and mobilize people. The example of COP22 organized in Marrakech (2016) is interesting here.

"With the COP22, everyone was well motivated"
"When I hear radio shows, I think I have to do a few things! (...) but OK !"

Economic Factors

The economic constraints are very important and have an influence for the daily life. For the young especially who have a limited resources as they depend from their parents and family. This factor is not playing a significant role in the general pro-environment awareness.

"The poor and the rich are killing the environment! "
"Poverty has nothing to do with cleanliness! "
Nevertheless, we noted that economic factors are influencing some behaviors and not others.
"… Organic products are rare and very expensive… "

Socio-cultural factors

We have seen the importance of this factor. The Moroccan society is a conservative society and very related to the norms, traditions, and where the conformity to the collective behavior is very pronounced. The socio-cultural factor is a barrier to EB and plays a negative role because the social rule is to not respect nature and the environment (even if the religion encourages its respect).

"The social norm is the lack of respect for the environment"
"... When you make a gesture (...) you risk being laughed at by people"
"Everyone makes fun of the environment"
"We are a culture of environmental conservation (hh)"

Also, the "Living together", "Common space", "common property" and "the public good" is a concept that is not very developed in Morocco and are not respected. This is an EB barrier. *"We do not feel in possession of our environment, so we do not care! "*

Conclusion

It was difficult to apprehend the intrinsic elements of the individual behavior. Literature of psychology sociology of

environment is abundant! Intrinsic and extrinsic factors are intertwined with each other to shape the EB (figure1). It will be interesting to understand the dynamics through the different factors: how each one influences and shape the other one? We believe that the interactions between them are important to study. The multitude of ecological behaviors: waste sorting, recycling, ecological consumption, complicates the identification of an integrated framework. It could be interesting (as highlighted in the literature to study each behavior and its determinants? Or grouping them in the same category. This paper is the first step in our research agenda. The assessment of these factors is the next step.

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