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Bouarar, Ahmed Chemseddine and Mouloudj, kamel

University of Medea, University of Medea

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Using the Theory of Planned Behavior to Explore Employees Intentions to Implement Green Practices

BOUARAR Ahmed Chemseddine ^{1*}

MOULOUDJ Kamel ²

1. The University of Medea, (Algeria), shemseddine26000@gmail.com

2. The University of Medea , (Algeria) , kmouloudj@yahoo.fr

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Abstract:

Predicting behaviors is particularly important in the field of environmental management because the environment is greatly influenced by human behavior. This paper aims to contribute to the development of an extended theory of planned behavior (TPB) and to gain some insight into the motives for employees' intentions to implement green practices in Algeria as a developing country. Data were collected from the convenience sample of 182 employees in three Algerian cities using a questionnaire survey. The results indicated that attitude toward behavior, subjective norms and environmental knowledge is positively and significantly affect employee's intention to implement green practices. The results also suggested that perceived behavior control had no significant effect. It is expected that the results of this paper can aid policymakers and stakeholders in drafting and implementing sustainable environmental regulations in the workplace.

Keywords: Attitude; Environmental Knowledge; Perceived Behavior Control; Subjective Norms; Workplace .

JEL classification codes : E24 ; M12 ; Q56 .

* : *Corresponding author.*

استخدام نظرية السلوك المخطط لاستكشاف نوايا الموظفين لتنفيذ الممارسات الخضراء

أحمد شمس الدين بوعرار^{*1}

كمال مولودج²

1. جامعة يحي فارس المدية ، (الجزائر) ، shemseddine26000@gmail.com.

2. جامعة يحي فارس المدية ، (الجزائر) ، kmouloudj@yahoo.fr.

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الملخص:

إن التنبؤ بالسلوكيات مهم بشكل خاص في مجال الإدارة البيئية، لأن البيئة تتأثر بشكل كبير بالسلوك الإنساني. وعليه تهدف هذه الورقة إلى المساهمة في تطوير توسيع نظرية السلوك المخطط (TPB) واكتساب بعض البصيرة حول دوافع نوايا الموظفين لتنفيذ الممارسات الخضراء في الجزائر كدولة نامية. تم جمع البيانات من عينة ملائمة مشكلة من 182 موظفا في ثلاث مدن جزائرية باستخدام طريقة الاستبيان. أشارت النتائج إلى أن الاتجاه نحو السلوك والمعايير الذاتية والمعرفة البيئية تؤثر بشكل إيجابي ودال معنويا على نية الموظف لتنفيذ الممارسات الخضراء. كما أشارت النتائج أيضا إلى أن السيطرة السلوكية المدركة ليس لها تأثير دال معنويا. من المتوقع أن تساعد نتائج هذه الورقة صانعي السياسات وأصحاب المصلحة في صياغة وتنفيذ اللوائح البيئية المستدامة في مكان العمل.

الكلمات المفتاحية: اتجاه؛ معرفة بيئية؛ سيطرة سلوكية مدركة؛ معايير ذاتية؛ مكان العمل .

رموز تصنيف JEL: E24؛ M12؛ Q56 .

Introduction

Global warming and carbon emissions have attracted international attention (Polonsky et al., 2012). Environmental pollution of all sorts can negatively impact the environment, wildlife, and human health and well-being. It is widely agreed that environmental problems are mainly rooted in human behavior (Winter & Koger, 2014), and it is widely acknowledged that current human behavior has detrimental impacts on the planet's environment. The rising number of environmental laws and pressures from the market has sparked organizations' and managers' awareness of environmental practices (DiPietro et al., 2013). The rising concern regarding global and local environmental problems and issues has also prompted policymakers and non-governmental organizations to promote pro-environmental behavior (Liobikiene & Poškus, 2019). Thus, understanding pro-environmental behavior is paramount since it will contribute to theory development regarding pro-environmental behavior management and provide insights to the policymakers so that they encourage pro-environmental behavior (Sawitri et al., 2015).

The environmental performance of organizations highly relies on the employee's voluntary engagement in greening activities (Yuriev et al., 2018). Regarding participation in environmental activities, employees are argued to appreciate working for environmentally concerned companies (Harvey et al., 2010). However, Chan & Hawkins (2010) note that some employees are insouciant to comply with green practices as they doubt their management's real intention behind the green measures. Chan et al. (2014) claim that the implementation of environmental programs can stir resistance from employees, due to their reluctance to switch towards newfangled and different operations. Aragón-Correa et al. (2013) suggested that many organizations that use green human resource management (GHRM), have benefited from their adoption and their employees have gained more confidence, and better morale and performance. GHRM refers to a set of HRM practices that organizations use to uplift employee workplace green performance (Shen et al., 2018). Hameed et al. (2020) found that GHRM practices have a significant indirect effect on organizational citizenship behavior toward the environment through green employee empowerment.

Adoption of effective GHRM leads to promote employee green behavior (Renwick et al., 2013), strong public image, efficient productive business processes, better reputation, exceedingly greener professional and employees, more product quality, leading competitive advantage, better productivity, robust commitment and loyalty, strong motivation, etc. (Vahdati, & Vahdati, 2018). The way of changing people's behavior and bringing about a congruous relationship between nature and human beings is an unsolved issue in various disciplines (Liu et al., 2018). Understanding what prompts an individual's tendency to behave pro-environmentally is an intricate issue that is still not fully understood (Coelho et al., 2017). Owing to the vital importance of environmental activism, it is pivotal to determine factors that explain why individuals get involved in environmental activism (Tam, 2019). Identifying factors of pro-environmental behavior are necessary when formulating effective and sound policies for directing the public's behavior toward preserving the natural environment (Li et al., 2019). Chan et al. (2014) say that exploring employee's intention to conduct green practices has seemingly been ignored in the literature. Limited empirical studies have investigated what stir employees' intentions to implement the company's environmental measures (Chan & Hon, 2020).

Ones & Dilchert (2012) defined employee green behaviors as "scalable actions and behaviors that employees engage in or bring about that is linked with, and contribute to, environmental sustainability". This definition involves both involuntary (required by the company) and voluntary employee green behaviors (VEGB). Norton et al., (2015, p.105) define required employee green behaviors as "green behavior performed within the context of employees' required job duties. This includes adhering to organizational policies, changing methods of work including choosing responsible alternatives, and creating sustainable products and processes". Indeed, some previous studies have investigated the factors affecting employees' pro-environmental behavioral intentions, such as the influence of TPB constructs (Greaves et al., 2013; Sawitri et al., 2015), knowledge, awareness, and concern (Chan et al., 2014), psychosocial and organizational factors (Yuriev et al., 2020).

Studies have demonstrated that the theory of planned behavior (TPB) can explain people's intention to be part of organized environmental actions (Tam, 2019). The TPB was proposed by Ajzen (1991) advocates that an individual's behavioral intention is jointly influenced by three main factors: (1) attitude toward the behavior, (2) subjective norms, and (3) perceived behavioral control. The TPB has been frequently adopted by social psychologists to examine behavioral intentions (Fielding et al., 2008). The TPB has been used on a wide range of behaviors to better understand what kind of employees' intentions motivate applying green practices (Greaves et al., 2013). Yuriev et al. (2020) found that the TPB explained 79% and 37.7% of the variance in predicting intentions of employees to travel to work using alternative transportation and to make eco-suggestions directed toward the workplace, respectively. Also, Greaves et al. (2013) found that the TPB constructs explained between 46% and 61% of the variance in employee intentions to engage in three environmental behaviors (switching off PCs every time employees left their desks for an hour or more; using video-conferencing for meetings that would otherwise require travel, and recycling as much waste as possible), and to mediate the effects of specific antecedent beliefs upon employee intentions to engage in these behaviors. However, some other studies have used other theories, such as norm activation theory, values-beliefs-norms theory, and social-cognitive theory to explain pro-environmental behavior (Sawitri et al., 2015).

Given the research gap on the environmental behavioral intentions, understanding what drives employees' intentions to implement voluntary green practices in the Algerian context is crucial. Thus, exploring what will influence employees' intentions to implement green practices is substantial and germane to contemporary business operations (Chan et al., 2014). The objectives of this paper were to: (1) determine the effect of attitude towards green practices, subjective norm, perceived behavioral control, and environmental knowledge on intentions of the employee to implement the green practices; (2) develop and validate a model that extending a TPB to include environmental knowledge and (3) answer call by Chan & Hon (2020) who called for future studies to measure the intentions of employees to implement environmental measures in different contexts. The remainder of this paper is organized as follows. Section 2 describes the TPB used in the paper, and then present relevant literature review and hypotheses. Section 3 explains the methodology. Section 4 presents the main results, discussions thereof. Section 5 concludes, implications, and directions for future research are outlined.

Literature Review and Hypothesis Development

Theory of Planned Behavior (TPB)

The TPB is an extension of the Theory of Reasoned Action (TRA). The TPB has since its development some 30 years ago showed to be an effective approach to explain human behavior (Sommer, 2011), and it is one of the most outstanding approaches for explaining environmental behavior within work context (Unsworth et al., 2013). The TPB postulates that the likelihood of an individual engaging in pro-environmental behavior (for example, water and energy conservation) is correlated with the strength of his or her intention to engage in the behavior.

The application of the TPB to determine factors associated with intentions to implement green practices has been demonstrated in many studies using empirical research methods. For example, Greaves et al. (2013) used the theory to study environmental behavioral intentions in a workplace setting. Dixon et al. (2015) applied the TPB as the theoretical research framework to investigate the determinants of behavioral intentions toward energy conservation behavior among faculty, staff, and graduate students working at a university. Gao et al. (2017) used the extended TPB to understand employees' intention to save energy in workplaces. Yuriev et al. (2020) applied the TPB to identify the importance of psychosocial and organizational factors that influence employees' intentions to engage in pro-environmental behaviors at the workplace. Chan & Hon (2020) used the TPB model to establish the relationship between environmental concern, the constructs of TPB, two extended constructs (psychological ownership of the company and sense of responsibility), and employee behavioral intention to implement environmental measures.

While the main constructs of the TPB are generally accepted, it has been advocated widely for its merits as its model includes more constructs in terms of explanatory quality (Sommer, 2011). Among the constructs proposed, environmental knowledge is of particular importance. Zsóka et al. (2013) confirmed that action-related environmental knowledge is significant in seeking to stimulate pro-environmental behavior. Environmental knowledge promotes awareness and leads to positive attitudes toward nature (Kim et al., 2018). Moreover, DiPietro et al. (2013) found that people with higher education were more conscious regarding green practices. Thus, we integrate environmental knowledge into the model of TPB to improve predictive power.

Intentions to Implement Green Practices

Norton et al. (2015, p.105) define voluntary employee green behavior as "green behavior involving personal initiative that exceeds organizational expectations". Chan & Hon (2020, p.173) defined ecological behavior intention as "the intention to act in an environmentally responsible way to contribute toward environmental preservation and/or conservation". According to Homburg & Stolberg (2006), pro-environmental behavior for instance includes environmental activism (e.g., active engagement in environmental organizations), non-activist behavior in the public sphere (e.g., petitioning on environmental issues), private sphere environmentalism (e.g., saving energy, purchasing recycled goods), and behavior in organizations (e.g., product design). By saving water or electricity and by actively engaging in various environmental activities—citizens can, directly and indirectly, be parts of solving environmental problems (Liobikiene & Poškus, 2019). In this study, employees' green practices include printing on both sides of the paper (duplex printing), reduce water consumption, turning

off lights when you exit a bureau, putting a computer in sleep mode, driving less, and switching to electronic files (going Paperless).

Workers in any organization can voluntarily adopt innumerable environmental behaviors, such as recycling, carpooling, or using video-conferencing instead of traveling (Yuriev et al., 2018). Ones & Dilchert (2012) offer a job performance-based classification of employee green behavior with five categories: (1) working sustainably (e.g., creating sustainable product and processes), (2) conserving resources (e.g., reusing), (3) influencing others (e.g., educating and training for sustainability), (4) taking initiative (e.g., lobbying and activism), and (5) avoiding harm (e.g., preventing pollution). Kaiser et al. (1999) found that general ecological behavior is predicted by ecological behavior intention, which, in turn, is a function of environmental knowledge, and environmental values. Liu et al. (2020) found that environmental behavioral intentions have a significant positive effect on pro-environmental behaviors.

Attitude towards Green Practices

Attitude is an expression of a favorable or unfavorable appraisal of a person, place, thing, action, or event. According to Ajzen (1991, p.188) attitudes refers to "the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question." The role of attitude in explaining intentions to implement green practices has been considered in several studies. Polonsky et al. (2012) affirmed that having positive environmental attitudes triggers pro-environmental behaviors participation decisions. Howell (2011) finds that raising people's positive perception regarding the repercussions of global warming, have also been found as a factor that stimulates intentions to behave more pro-environmentally.

Tian et al. (2020) indicated that pro-environmental attitude positively predicted required employee green behavior and voluntary employee green behavior. Chan & Hawkins (2010) demonstrated that the attitudes of hotel staff toward ecological behavior had a positive impact on their actual implementation of the hotel's green practices. Greaves et al. (2013) discovered that attitude to be a significant predictor of intention to engage in pro-environmental behavior in a workplace setting. Besides, Banwo & Du (2019) found that environmental attitude had a significant direct effect on workplace pro-environmental behavior. Recently, Liu et al. (2020) found that environmental attitudes have a significant positive effect on environmental behavioral intentions and pro-environmental behaviors. Chan & Hon (2020) showed that the intention of employees to practice environmental measures was significantly predicted by attitude toward behavior. However, Chen & Knight (2014) found that attitudes toward energy-saving do not significantly affect employees' intentions to conserve energy. As a result, the following research hypothesis has been constructed:

H1: Attitude toward behavior has a significant positive effect on employees' intentions to implement green practices.

Subjective Norm (SN)

Subjective norms refer to the belief that an important person or group of people will approve and support a particular behavior (Ham et al., 2015). Subjective norms represent one's sense that significant others expect a certain pattern of behavior (Gifford & Nilsson, 2014). Matthies et al. (2012) showed that parents can install norms in young children (age 8–10) to recycle and re-use paper. It was found also, that parent's sanctions, as well as their behavior, impact their children's

recycling behavior, and that communication of problem knowledge mainly influences the reuse of paper. In this study, the subjective norm factor refers to the social environment effects on the employees' intentions to implement green practices, since the surrounding people's beliefs, feelings, and thoughts about environmental practices would motivate the employee to practice it, as well it could affect employees' perspectives about how it would be useful if they engage in pro-environmental behavior in the workplace.

As such, green practices implemented by directors, managers, and co-workers may affect employees' behavior towards adopting green practices, when a manager for instance reads correspondence electronically instead of printing them, this behavior may encourage employees to behave correspondingly. Sometimes people behave in a certain way as they believe that most people behave in the very same way (whether that is objectively true or not). [Banwo & Du \(2019\)](#) found that social norms had a significant direct effect on workplace pro-environmental behavior. [Greaves et al. \(2013\)](#) found that subjective norms significantly predicted the intentions to engage in pro-environmental behavior in the workplace. Recently, [Wang et al. \(2019\)](#) found that employee norms, subjective norms, descriptive norms, and electricity conservation habits have a significantly positive effect on employee's intention to conserve electricity in the workplace. [Chan & Hon \(2020\)](#) indicated that subjective norms have a positive effect on the intention of employees to practice environmental measures. As a result, the following research hypothesis has been constructed:

H2: Subjective norm has a significant positive effect on employees' intentions to implement green practices.

Perceived Behavioural Control (PBC)

The TPB considers perceived behavior control (PBC) as a third determinant of human behavior. PBC captures the individual's perception of their capacity to carry out the behavior in the light of experience and expected issues, skills, abilities, opportunity, compulsions, and dependence upon others ([Ajzen, 1988](#)). PBC refers to an individual's confidence in his/her abilities to correctly perform the behavior in question ([Ajzen, 1991](#)). In other words, this variable refers to the availability of the necessary resources and opportunities for a given behavior and is influenced by a set of factors ([Ham et al., 2015](#)), such as previous experiences related to the implement green practices, perceived convenience, perceived barriers, and other factors, that rise or reduce the perceived level of feasibility of this behavior. PBC a measure of the individual's perception of their ability to perform the behavior in question ([Tonglet et al., 2004](#)). [Banwo & Du \(2019\)](#) found that PBC had a significant direct effect on workplace pro-environmental behavior. Besides, [Greaves et al. \(2013\)](#) showed that PBC significantly predicted the intentions to engage in environmental behavioral intentions in the workplace. [Chan & Hon \(2020\)](#) found that PBC affected the intention of employees to practice environmental measures. As a result, the following research hypothesis has been constructed:

H3: Perceived behavioral control has a significant positive effect on employees' intentions to implement green practices.

Environmental Knowledge

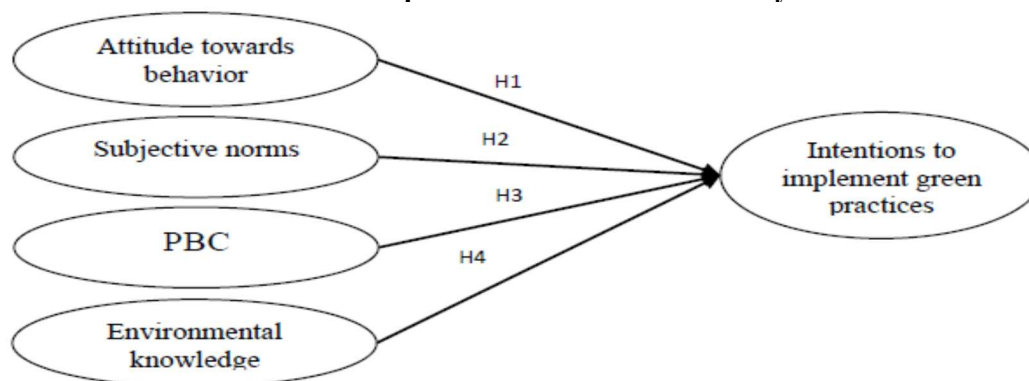
According to [Kaiser & Fuhrer \(2003\)](#), before any action, one must know how things should be (declarative environmental knowledge), and what can be done (procedural knowledge). Environmental knowledge is defined as 'general knowledge of facts, concepts, and relationships concerning the natural environment and its major ecosystems' ([Fryxell & Lo, 2003, p.48](#)). So, according to [Michelsen & Fischer \(2017\)](#) environmental education is a key requirement to encourage sustainable consumption and pro-environmental behavior. [Zsóka et al. \(2013\)](#) found a strong correlation between intensive environmental education and the environmental knowledge of students. There is little doubt that the environmental program generates extra workload for organizations employees, some employees may feel insecure due to their lack of environmental knowledge ([Chan et al., 2014](#)). Thus, knowledge is considered necessary along with other conditions for ecological behavior ([Kaiser & Fuhrer, 2003](#)). The findings of the study by [Aragón-Correa et al. \(2013\)](#) indicate positive and significant relationships between information sharing practices with employees and encouraging employee cooperation and the establishment of a proactive natural environmental strategy for a firm. However, managers' environmental knowledge and values are of little avail if they fail to bring about actions or behaviors that alleviate their organization's impact on the environment ([Fryxell & Lo, 2003](#)).

In this regard, according to [Otto & Pensini \(2017\)](#), individuals must be aware of what sorts of actions are to be taken to behave more friendly with the environment. [Harvey et al. \(2010\)](#) found that there were differences in knowledge levels regarding environmental topics among employees. [Chan & Hon \(2020\)](#) found that the employee's environmental concern can exert an impact on his/her intention to implement environmental measures through his/her attitude toward green behavior, subjective norms, perceived behavioral control, and sense of responsibility. Besides, [Chan et al. \(2014\)](#) discovered that the three green triggers (environmental knowledge, environmental awareness, and environmental concern) are positively associated with employees' ecological behavior and ecological behavior is positively associated with intention to implement green practices. [Liu et al. \(2020\)](#) show that environmental knowledge has a significant positive effect on environmental attitudes. On contrary, [Oğuz et al. \(2010\)](#) concluded that environmental knowledge does not always influence awareness and behavioral intentions. Moreover, [Bartiaux \(2008\)](#) demonstrated that despite that some people are knowledgeable of environmental issues their knowledge did not positively correspond with their environmental actions. This leads to the following research hypothesis:

H4: Environmental knowledge has a significant positive effect on employees' intentions to implement green practices.

The summary of the hypothetical relationships among the variables is shown in Fig. 1.

Figure N° 1
The Conceptual Framework of this Study



Methodology

Research instrument

The questionnaire is the most common method of data collection used in the field of pro-environmental behavior research. All of the measurement scales were adapted from previous studies and some items have been modified to be consistent with the purpose of our study. The research instrument was developed in English and translated into the Arabic language by back-translation technique to validate the quality of the translated survey instrument. The two versions of the questionnaire were distributed according to the respondents' desire. The research instrument is described below and detailed information appears in the Appendix.

The questionnaire was divided into two sections. The first section focused on demographic characteristics, namely gender, age, and education level. The second section included 20 items on the five research constructs. Attitude towards behavior was captured using the scales of [Wesselink et al. \(2017\)](#). Subjective norm was measured with scales adapted from [Tang et al. \(2019\)](#). PBC was assessed with measures reported by [Tonglet et al. \(2004\)](#). Environmental knowledge was measured with scales adapted from [Liu et al. \(2020\)](#). Intentions to implement green practices (printing on both sides of the paper, water conservation, turning off lights when you exit a bureau, putting a computer in sleep mode, and switching to electronic files, etc.) were measured with scales adapted from [Chen & Knight \(2014\)](#). All measures were rated based on a Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Sampling and data collection

The population for the current research is employees in Algeria. The sample is selected using non-probability convenience sampling, which includes those who have the willingness to participate in the research. The unit of analysis for this research was employees of 18 years old and above. Before formally collecting the data, a pilot test was performed to validate the instrument ([Tang et al., 2019](#)). Fifteen employees were invited to participate in the pilot study, which guaranteed the absence of any errors and proved content validity. The survey was performed from the beginning of January to the end of February in 2020 in three Algerian cities: Algiers, Medea, and Blida. Questionnaires from employees with working time inferior to three months were dismissed ([Wang et al., 2019](#)). Finally, we obtained 182 useable questionnaires and

the response rate was 60.67% (182/300). Table 1 shows the participants' demographic information.

Table N°1
Demographic characteristic of participants

Characteristic	Variables	Frequency	Percentage
Gender	Male	113	62.09
	Female	69	37.91
Age (in years)	18-35	55	30.22
	36-50	78	42.86
	Above 50	49	26.92
Education	High school/less	57	31.32
	Graduate	94	51.65
	Postgraduate	31	17.03

Source: Authors analysis from survey results.

The demographic characteristics of the respondents were analyzed using descriptive statistics. 62.09% were male respondents and 37.91% were female. Regarding age, most responses came from 36 to 50 years of age, which is 42.86% of the total followed by 18 to 35 years of age, which is 30.22%. The education level of respondents indicates that most of them are graduates and make 51.65% of respondents.

Results and discussions

Results of reliability analysis

The reliability of the research instrument was assessed by examining Cronbach's alpha coefficient. Table 2 shows the variables used in the scale, their number of items, and the inter reliability of the scale. A value greater than 0.6 indicates satisfactory internal consistency reliability ([Malhotra, 2010](#)).

Table N°2
Results of reliability analysis

Constructs	Number of items	Cronbach's Alpha
Attitude toward behavior (ATB)	4	,865
Subjective norm (SN)	4	,825
Perceived behavioral control (PBC)	4	,849
Environmental knowledge (EK)	4	,895
Intentions to implement green practices (IPGP)	4	,866

Source: Authors analysis from survey results.

The reliability for the attitude toward behavior construct was satisfactory with a value of 0.865. The Cronbach Alpha values for the subjective norm were 0.825. For PBC is 0.849. For environmental knowledge is 0.985, and for Intentions to implement green practices is 0.866. These values indicate that the scales were reliable and all items should be included in the scale.

Correlation between constructs

Table N°3

Means, standard deviations of, and correlations between, the variables

Variables	Mean	SD	1	2	3	4	5
ATB	4,0440	,62420	1	-	-	-	-
SN	4,0192	,60240	,675**	1	-	-	-
PBC	4,0031	,61334	,765**	,798**	1	-	-
EK	2,9533	,87429	,508**	,526**	,536**	1	-
IPGP	4,0137	,62671	,645**	,640**	,653**	,546**	1

** . Correlation is significant at the 0.01 level (2-tailed).

Table 3 shows that attitude toward behavior has a strong relationship with the intention to implement green practices ($r=.645$, at a value of $p \leq .01^{**}$). Subjective norm has also a strong relationship with dependent variables i.e., the intention to implement green practices ($r=.640$ at a value of $p \leq .01^{**}$). Similarly, PBC has also a strong relationship with the intention to implement green practices ($r=.653$ at a value of $p \leq .01^{**}$). Besides, environmental knowledge has a moderate relationship with intention ($r=.546$, $p \leq .01^{**}$).

Hypothesis testing

Hypothesis testing was further done through multiple regression analysis. The details of the multiple regression analysis are shown in Table 4. The results of the current study shown that a positive attitude towards green practices positively affecting the employee's intention to implement green practices ($\beta = .270$; $t = 3,287$) at the .05 level ($p < .05$), a hypothesis that was suggested by various authors in business management literature. Thus hypothesis 1 is supported. This finding supported the theoretical framework that posits attitude as a strong predictor of employee's intention. In the same context, it was found that subjective norm exerts a positive effect on employee's intention to implement green practices ($\beta = .233$; $t = 2,550$). Thus hypothesis 2 is supported. This suggests that for subjective norms, the perceptions of other significant individuals have a strong direct effect on the intention to implement green practices. Also, the findings indicate that environmental knowledge had a significant and positive effect on employees' intentions to implement green practices ($\beta = .182$; $t = 2,415$). Thus hypothesis 4 is also supported. This suggests that level of environmental knowledge has a strong direct effect on the intention to implement green practices. On the other hand, PBC had a non-significant effect on employee's intention to implement green practices ($\beta = .160$, $t = 1,566$) and ($p = .119$). Thus hypothesis 3 is not supported. For PBC, this suggests that perceptions of control and perceived enhancers or barriers did not have a significant direct effect on the intention to implement green practices.

Table N°4

Regression analysis results for the intention to purchase green products

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(constant)	,903	,237		3,812	,000
ATB	,270	,082	,269	3,287	,001
SN	,233	,091	,224	2,550	,012
PBC	,160	,102	,157	1,566	,119
EK	,149	,045	,208	3,314	,001

Dependent Variable: intentions to implement green practices.

Independent variables: attitude toward behavior; subjective norm; perceived behavioral control; and environmental knowledge.

Notes: Model summary: $R = 73,0\%$; $R \text{ Square} = 53,3\%$; Adjusted $R \text{ Square} = 52,2\%$; $F = 50,418$; $P = 0.000$ ($p < 0.05$).

The value of the un-standardized Beta coefficient among the independent variables shows that "attitude toward behavior" (0.270) is the most important antecedent in affecting the intention to implement green practices. Also, the intention to implement green practices is explained 53.3 percent by the combination of the three independent variables ($r^2=0.0533$), which includes attitude toward behavior, subjective norm, and environmental knowledge.

Discussion

The objective of this study was to understand what drives employees' intentions to implement green practices in Algerian. Four hypotheses were proposed. Three hypotheses have been supported in a significant way. Along with the study's findings, there was evidence that attitude toward behavior affects an employee's intention to implement green practices. This finding is in agreement with H1. Also, this result is in line with the findings of the previous studies (for example, [Banwo & Du, 2019](#); [Chan & Hon, 2019](#); [Greaves et al., 2013](#); [Liu et al., 2020](#)). This means that employees who believe it is important to implement green practices will be more willing to implement green initiatives at work. Such as recycling, using videoconferencing instead of traveling, using environmentally-sustainable modes of transportation, conserving energy, using green (renewable) electricity, using recycled paper and print on both sides. In other words, employees with positive attitudes toward a specific pro-environmental behavior are more likely to intend to implement that behavior. Moreover, employees who have a positive attitude, normally have a positive direct effect on their intention ([Ajzen, 1991](#)). However, [Chen & Knight \(2014\)](#) reported that attitudes toward energy-saving were not related to employees' intentions to conserve energy at work.

Consistent with the study's findings, there was proof that the subjective norms affect the employee's intention to implement green practices. This finding is in agreement with H2. The subjective norm refers to the level of social pressures exerted by a reference group that can influence a person's perception, feeling, preference, judgments, attitude, intention, and behavior. This means that employees with an influential group (such as co-workers, supervisors, managers) were more likely to produce favorable intentions to implement green practices and convert the intention into behavior. That result was confirmed by many previous studies. For example, [Chen & Knight \(2014\)](#) found that injunctive norms had a direct and positive effect on employees' intentions to conserve energy at work. [Wang et al. \(2019\)](#) showed that employee's personal norms, subjective norms, and descriptive norms all have a significantly positive effect on employee's intention to conserve electricity. In general, Subjective norm is important because they influence how employees interpret information, it seems to play a major role in the formation of an intention to adopt green practices.

In line with the study's findings, environmental knowledge affected employees' intentions to implement green practices. This finding is in agreement with H4. Furthermore, this result is consistent with the findings of the previous studies. For example, [Chan et al. \(2014\)](#) found that environmental knowledge is positively related to employees' ecological behavior and ecological behavior is positively related to the intention to implement green practices. Also, [Kaiser et al. \(1999\)](#) found that environmental knowledge and environmental values explained 40% of the variance of ecological behavior intention. We consider this finding as completely logical as it is widely known that people with knowledge differ from those who lack it and that the difference between knowing something and not knowing it, is like the difference between light and darkness, because knowledge helps in discerning and understanding facts and overcome ignorance, and

thus rectifying misinformation, employee's knowledge of environmental issues leads to rising his awareness of environmental risks, and this would, in general, generates a positive attitude towards protecting the environment, employees' knowledge of costs they can reduce through very simple behavior of reducing electricity consumption, may encourage them to adopt energy-saving behavior, thus it is undoubtedly that the process of disseminating knowledge within organizations play a pivotal role in employees willingness and readiness to acquire the necessary knowledge to adopt ecological behavior.

On the other hand, the results indicated that PBC had no significant effect on employee's intention to implement green practices. This result is in disagreement with H3. This result is inconsistent with the [Chen & Knight \(2014\)](#) study which found that PBC had a direct and positive effect on energy conservation intentions at work. Also, inconsistent with the results of the study carried out by [Chan & Hon \(2020\)](#) who found that PBC had a significant effect on the intention of employees to practice environmental measures. Although the finding for PBC on green practices implementation intention may diverge from the expectations of the theoretical framework and findings of several previous studies (such as [Banwo & Du, 2019](#); [Greaves et al., 2013](#)), there may be a reasonable explanation, among the logical explanations of this finding, is that employees have enough confidence in their abilities to implement green behaviors (saving water and electricity for instance) and that they deem that implementing these behaviors is easy and does not require high skills, therefore they do not encounter any physical, moral, or organizational hurdles that may hamper their abilities to implement green practices (mentioned in the questionnaire). The TPB assumes that in the absence of any problem of volitional control over the performance of the behavior, perceived behavioral control may not help to predict intention or behavior performance ([Ajzen, 1991](#)).

Conclusion

Our study extending the TPB to explain the role of environmental knowledge in the intention to implement green practices by employees in Algeria. A convenience sampling method was used in this paper. We invited the employees in different sectors to participate voluntarily. Findings showed that employees in Algeria have a medium level of environmental knowledge ($M=2.94$); positive attitudes towards green practices; high subjective norms, a high degree of PBC; and good intentions to implement green practices ($M=4.01$). Also, the results indicated that the model was significant and attitude towards behavior, subjective norm, and environmental knowledge factors accounted for 53.3% of the variation in intention to implement green practices. Attitude towards behavior had the strongest and positive contribution to the intention to implement green practices. The subjective norm and environmental knowledge had the second and third highest contributions to the intention, respectively. As the opposite of what was expected, PBC has no significant effect on employees' intentions to implement green practices. Even though employees can play an active role in the promotion of pro-environmental behavior in the workplace, there's very little research interest in environmentally responsible behavior at work in Algeria and other developing countries. Thus, the results of this paper provide practical guides for practitioners to formulating the most appropriate and effective policies for improving the employees' engagement in pro-environmental behaviors.

Managerial Implications

Several practical implications might be suggested from the findings regarding the best possible ways of encouraging and stimulating employees to adopt green practices. The findings reveal that practitioners would increase the intention to implement green practices had they succeeded in increasing environmental knowledge. To increase environmental awareness among employees, it is incumbent upon organizations to adopt clear-cut strategies that first and foremost target increasing environmental awareness among employees through disseminating information about the negative implications of conventional practices on the environment. Along with promoting and highlighting the benefits of adopting ecological behavior including identifying environmental issues related knowledge and how to employ this knowledge in the decision-making process. Besides, the organizational culture and managing change ought to contribute to increasing green knowledge among employees to convince them of the need to voluntarily implement these behaviors .

Incentives such as awards, promotions, certificates, and stipends should be offered to employees who integrate green practices for ecologically sustainable development goals in the workplace. Also, organizations must recognize employee voluntary role in the success of environmental initiatives, it is also incumbent upon organizations to increase employees' awareness of the economic benefits that could green practice adoption can confer (such as financial savings that could be earned through employees involved in a particular green practice like saving energy for instance). Besides it is of vital importance to establish and increase self-efficacy feelings, as well as to foster feelings of the ability to perform to generate greater intentions to implement green practices. It is also, we highly recommended to help employees overcome any hurdles that may hinder their contribution to these practices, like providing a comprehensive guide of environmental practices (saving water, electricity, and paper for instance), as well as organizing training programs about green practices. It is also, mandatory to increase employee's awareness until eradicating any negative and bad habits regarding wasting energy (such as leaving light switched on in offices and wasting water), it is also preferable to affix wall stickers and decals inconvenient places to remind employees to save energy and boost green behavior (such as stickers bearing Quranic verses, prophetic teachings, and hadiths urging conservation of resources). Moreover, adopting green human resources management practices (recognizing and rewarding green practices for instance) encourage employees enormously and presents them with opportunities to engage and participate in green practices.

Generally, to increase ecological positive behavior, an organization must adopt green buildings, switching their cars consumption of gasoline toward gas, reducing electricity consumption, especially using lights during the night inside organizations (numerous educational organizations in Algeria for instance keep all lights switched on during nighttime without any compelling reasons or urging necessity), alleviating paper consumption by using instead electronic files.

Limitations and Directions for Future Research

Several limitations to this current paper should be acknowledged, thus providing numerous opportunities for further research. First, like all non-probability samples, our sample was not a perfect representation of all Algerian employees. The sample was relatively small and included only three cities, and this limits the ability to generalize the results of the study. Thus, increase the sample size and representative random would be of value for future research. Second, this paper examined the intention to implement green practices in general and did not consider specific kinds of green practices. Thus, we highly recommend future research to focus on particular practices, such as conserving energy, water, or paper in the workplace. Or focus on studying what drives farmers' intentions to implement agriculture green practices in developing countries? Third, our paper extending the TPB and includes another cognitive construct, that is, environmental knowledge, to explore the intention to implement green practices. Other potential constructs should be explored in future research, such as word of mouth communication, level of religious commitment, and employee's personality. Besides exploring the impact of contextual factors such as supporting senior management, organizational culture, and empowerment. Finally, the theoretical underpinnings of the relationship between intention and behavior (actual implementation of green practices) are emphasized by many scholars. This is an important aspect of the TPB because as Ajzen (1991) argues, the behavioral intention may not always be converted to actual behavior. Therefore, we conclude by calling for more empirical research investigating the complex relationship between intention and actual implementation of green practices in the workplace.

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Appendix

Research measurements & Descriptive statistics

No.	Items	Mean	SD
ATT1	I'm in favor of implement green practices in the workplace.	4,0330	,75729
ATT 2	I think it's a good idea to support the implement green practices at work.	4,0055	,76163
ATT 3	Implement green practices in the workplace are important to me.	4,0714	,75827
ATT 4	I think too much attention is paid to implement green practices at work.	4,0659	,67802
SN 1	Most people who are important to me think I should implement green practices.	4,0714	,72855
SN2	My sup-visor expects me to implement green practices.	3,9670	,72753
SN 3	My colleagues expect me to implement green practices.	3,9890	,74321
SN 4	I feel pressured due to no implement green practices.	4,0495	,77444
PBC1	I have resources, time, and opportunities to implement green practices.	4,0275	,69275
PBC 2	Implement green practices in the workplace are easy.	4,0440	,74940
PBC 3	I know how to implement green practices at work.	3,9780	,77214
PBC 4	I am confident that if I want, I can implement green practices.	4,0055	,73955
EK1	Carbon dioxide contributes to the creation of the greenhouse effect.	2,9890	1,01366
EK2	Excessive consumption of electricity and water will damage the environment.	2,9286	1,01391
EK3	Using transportation will cause air pollution.	2,9451	,97326

EK4	Devices in "sleep mode" do not use electricity at all.	2,9505	1,00977
IPGP1	I intend to turn off computers when they are not being used.	3,9615	,69223
IPGP2	I intend to turn off lights when they are not being used.	4,0495	,76727
IPGP3	I intend to encourage my co-workers to implement green practices	4,0440	,77833
IPGP4	I will make an effort to implement green practices in the workplace.	4,0000	,72828
