THE IMPACT OF ENVIRONMENTAL KNOWLEDGE ON RECYCLING INTENTION: THE MEDIATING ROLE OF PERCEIVED BEHAVIOURAL CONTROL

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Currently, sustainability goals are the prior aim to be achieved by any organization as the united nation called to apply sustainability practices to be achieved by 2030. Recycling is one of the main extracted strategies from SDG 12 that countries try to increase and rely on landfills. Therefore, this study aims to measure the impact of environmental knowledge (EK) on recycling intention (RI); in addition, it tries to explore the mediation role of Internal perceived behavioural control (IPBC) and External perceived behavioural control (EPBC)). The research used a quantitative approach through distributing an online questionnaire to people in Egypt in order to examine the research variables. Number of 416 valid responses were analyzed using SPSS through conducting Bootstrapping method to analyzed the mediation role. The findings showed that environmental knowledge has a direct impact on recycling intention; moreover, the mediation role of Internal perceived behavioural control and External perceived behavioural control is rejected. This proves that increasing the environmental knowledge will enhance the behaviours of the societies. Furthermore, will grab the societies' attention to apply the sustainability practices in the future. Future studies need to consider recycling activities, especially in developing countries, and to improve the awareness and behaviour levels.

Keywords: sustainability, recycling, quantitative study

INTRODUCTION

Solid waste is one of the most difficult problems in developing countries because of the increase in urbanization, population growth, and economic expansion. These reasons have led to an increase in the amount of solid waste in Egypt. According to Ibrahim, Abo El-Ata, and El-Hattab (2020), the different sectors in Egypt are generating around 95 million tons of solid waste, and the waste generated per capita increased from 0.2 kg to 0.6. Therefore, Egypt developed eight sustainable goals Based on the UN SDGs to be achieved by 2030 (https://mped.gov.eg/EgyptVision?lang=en). Based on these goals, especially goal 7 which is related to decreasing the pressure on the environment and saving the biological environment and series of habitats from the effect of human activities, the study will try to increase the awareness of recycling in society.

Egypt is seeking to spread sustainability awareness and knowledge within the community (Ali *et al*., 2022; Ali *et al*., 2021). As Ibrahim *et al*. (2020) mentioned that the awareness is the main key to achieving better sustainable performance.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Environmental Knowledge (EK)

Environmental knowledge issues have begun to grow in developing countries, especially after launching sustainability goals from the Egyptian government. EK has been defined from different perspectives; according to Fryxell and Lo (2003), EK is described as a broad understanding of facts, ideas, and relationships related to the natural environment and its primary ecosystems. EK includes three main dimensions:

system, action-related, and effectiveness knowledge (Frick *et al*., 2004). Chan *et al*. (2014) mentioned that the person or customer will not buy or engage into specific activity or product if the knowledge steer behaviour in that context is insufficient. In addition, Boo and Park (2013) stated that when a customer or person believes that they have enough knowledge about something specific when they see themselves doing better than others. Some researchers highlighted that EK can be reflected on the person's behaviours (Vicente-Molina *et al*., 2013).

Recycling Intention (RI) and Perceived Behavioural Control (PBC)

Recycling is an effort to reduce human impacts on the environment and to achieve environmental sustainability (Ali *et al*., 2019). In 1991, Ajzen proposed the Theory of Planned Behaviour (TPB), which is related to studying the RI; this theory is extended already from Theory of Reasoned Action (TRA) (Ajzen and Fishbein, 1975). TPB proposed that the person's intention to perform an action comes originally from "positive evaluation of the behaviour (attitude), social pressure encouraging the behaviour (subjective norm) and perceived ease of performing such behaviour (perceived behavioural control)" (Wan *et al*., 2017). These three dimensions had confirmed to be the indicators for RI such as (Aboelmaged, 2021; Passafaro *et al*., 2019; Wan *et al*., 2017). Perceived Behavioural Control (PBC) as one of RI indicators is characterised as a self-perception of the person to complete the behaviour (Valle *et al*., 2005). Manstead and Van Eekelen (1998) explored the operationalized weaknesses of PBC and suggested that PBC should have two dimensions (Internal and External). In addition, the behaviour for the individual could be affected through either internal or external factors.

Environmental Knowledge refers to the awareness of the person for something specific or specific issues, This knowledge is based on the real information or behavioural knowledge (Jaiswal and Kant, 2018). Vicente-Molina *et al*. (2013) used EK variable to measure its impact on behaviour. Moreover, Liefländer and Bogner (2018) measured the relationship between EK and attitudes and behaviour. In addition, (Maurer and Bogner, 2020) modelled the relationship between EK and behaviour. The TPB has been confirmed in numerous research studies on RIs and behaviour (Aboelmaged, 2021; Davis *et al*., 2006; Smith and McSweeney, 2007). Based on the above discussion, the following hypotheses have been shaped:

➢ H_1: Environmental knowledge has a positive impact on IPBC.
➢ H_2: Environmental knowledge has a positive impact on EPBC.
➢ H_3: IPBC is mediating the relationship between Ek and RI.
➢ H_4: EPBC is mediating the relationship between Ek and RI.
➢ H_5: Environmental knowledge has a positive impact on Recycle Intention.

Based on the discussion above, a conceptual framework is formulated in Figure 1.
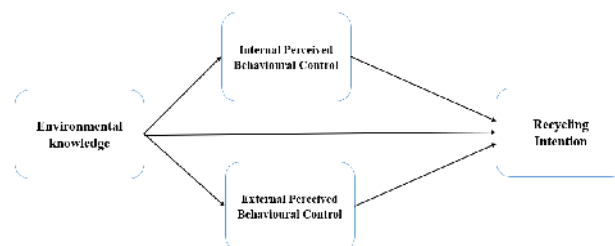

Figure 1. The conceptual framework

RESEARCH METHODOLOGY AND INSTRUMENTIN THIS STUDY

The quantitative approach was used in order to collect data, and to achieve the study's main goal. Online 416 respondents were collected and five-point Likert scale was used to measure items of the proposed model. The research items have developed from previous literature.

DESCRIPTIVE ANALYSIS

This study set three descriptive questions; the first one was related to the educational level of the respondents, the majority of whom were Bachelor degree holders with 67.3%, and 2.98 % were PhD holders. For gender, 61.5 % were male and 38.5 female. Finally, for income, the majority of income level of the respondents was between 1000 to 5000, with 58.7 %.

RELIABILITY AND VALIDITY TEST

Validity and reliability are used for data testing to verify that the data collected are suitable enough for testing the research hypotheses. To test validity, the average variance extracted (AVE) and factor loading (FL) are tested. The Cronbach's alpha value is tested to measure the reliability. Table1 illustrates the validity and reliability tests, all outputs have met the threshold, except RI4 with FL score .397.

Table 1. Validity and reliability for study variables

Variables Environmental knowledge	EK1	EK2	EK3	EK4	EK5	EK6
FL	.774	.709	.815	.776	.806	.830
Cronbach's alpha	0.875					
AVE	61.786					
Internal perceived behavioural control	IPBC1	IPBC2	IPBC3	IPBC4		
FL	.908	.821	.811	.811		
Cronbach's alpha	0.855					
AVE	70.385					
External perceived behavioural control	EPBC1	EPBC2	EPBC3	EPBC4		
FL	.868	.818	.841	.862		
Cronbach's alpha	0.868					
AVE	71.803					
Recycling intention	RI1	RI2	RI3	RI4		
FL	.761	.799	.842	Delete		
Cronbach's alpha	0.625					
AVE	52.120					

HYPOTHESES TESTING

- *H_1: Environmental knowledge has a positive impact on IPBC*

The regression test has been conducted, it could be observed that there is a positive significant effect of EK on IPBC, as P-value is 0.000 (which is less than 0.05, indicating a significant relationship), and the estimate value is 0. 526 (which is greater than zero, indicating a positive relationship). furthermore, the R Square (Coefficient of

determinations) is 0.27, which means that 27% of the variation in IPBC is explained by the independent variable EK. Accordingly, the first hypothesis testing is supported.

- *H2: Environmental knowledge has a positive impact on EPBC*

The regression test has been conducted; it could be observed that there is a positive significant effect of EK on EPBC, as P-value is 0.000 and the estimate value is 0.592. Furthermore, the R Square is 0.35, which means that 35% of the variation in EPBC is explained by the independent variable EK. Accordingly, the second hypothesis testing is supported.

- *H_3: IPBC is mediating the relationship between Ek and RI.*
- *H_4: EPBC is mediating the relationship between Ek and RI.*

Bootstrapping method with bias-correlated confidence estimates is used in order to measure the mediation role of (IPBC and EPBC) between EK and RI (Preacher and Hayes, 2004). The study used 95% confidence interval with 5000 bootstrapping resamples (Preacher and Hayes, 2008). The results showed, as in Table 4, that the mediation role of IPBC between the EK and RI is supported as (B= 0.0423, CI = 0.16 to 0.32), In contrast, the results showed that the mediation role of EPBC between the EK and RI is rejected as (B= 0.0331, CI =-0.0028 to 0.1266).

- *H5: Environmental knowledge has a positive impact on Recycle Intention.*

The regression test has been conducted; it could be observed that there is a positive significant effect of EK on RI, as P-value is 0.000, and the estimate value is 0.65. Furthermore, the R Square (Coefficient of determinations) is 0.42, which means that 42% of the variation in RI is explained by the independent variable EK.

Based on the discussion above, EK is positively affected by IPBC and EPBC; this finding is in line with many studies, like (Foroughi *et al*., 2022; Jaiswal and Kant, 2018; Kumar *et al*., 2017). It means that increasing the EK will enhance the behaviours of the societies; in addition, Mostafa (2007) who applied his study in Egypt confirmed that increasing the awareness about environmental problems is an important aspect toward the behaviour and attitude.

Finally, as for the mediating role of IPBC and EPBC, the study found that the IPBC, which is the skills and resources gained from practicing, has a positive impact on the RI. The result is supported by Shabbir *et al*. (2016). In contrast, the external perceived behaviour control is not affecting the RI as the external behaviour comes originally from the societies around the person, and it could affect him positively or negativity.

CONCLUSION

This study aims to measure the impact of EK on (RI), in addition to exploring the mediation role of (IPBC and EPBC) The implications of this study are in two sections: firstly, the theoretical implications are related to using the Theory of Planned Behaviour in the field of recycling intention, as the theory explains that the person' intention to take an action depends on many factors whether internal or external. This study expanded the use of TPB through testing the impact of EK, IPBC, and EPBC on RI. Secondly, the practical implications are related to the role of the government and relevant bodies to increase the consciousness about the benefits of recycling as a part of the sustainability development goals, in addition to creating training programs related to preserving the environment and spreading the sustainability culture.

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