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The Impact of Electronic Nudges on E-Consumer Behavior Evidence from Jordanian Market

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Abstract

The current study aimed at highlighting the impact of e-nudges including variables of (Retargeting, Privacy, Purchase Decision ,Product Choice and User Interface) on e-consumer behavior. Through employing the quantitative approach; a questionnaire was distributed on (444) consumers in Jordan for primary data. SPSS V. 23rd was employed to screen and process data, results of study indicated that there is a high level of relationship between electronic nudges and consumer behavior and this relationship scored a variance of (41%), as for the variables of e-nudges, it can be said that variables including (Retargeting, Privacy, Purchase Decision, and Product Choice) scored a low relationship to the dependent variable except for the sub variable of user interface which scored a medium relationship with a variance of 33.7%. Based on results of study, it was recommended that variables gathered are stronger than taking them individually, meaning that the influence of e-nudges is more powerful along with all the variables than them separated.

Keywords: Nudge, E-Nudge, Notification, Conduct, Behavior, Behavioral, Consumer, Online Shopping, website, Interface, Attention

INTRODUCTION

Behavior is generally defined as the way living organisms deal and behave with environmental conditions through an activity that aims to modify or change these conditions, so that they become appropriate for them and their requirements in order to be able to live and survive, and this concept applies to humans as well[1]. It is nothing but reactions to the pressures he is exposed to in his life, which affects their psychological state[2].

As for consumer behavior, it is a term that includes two concepts: behavior and the consumer, and with the previous definitions of these two concepts, it is possible to define consumer behavior as "a mental and physical activity performed by an individual that includes a process of evaluating goods and services, and comparing them with each other in order to obtain the best ones for the purpose of using them"[3].

The consumer faces many influences that control their final behavior and orientation towards buying and using a particular good or service, and these influences differ according to the individual consumer in terms of their nature, cultural and social background, and the nature of the market they exist within[4]. Among such influences is the idea of electronic nudges which this study focuses on a tries to make a tie between e-nudges and consumer behavior from the Jordanian market perspective.

Problem Statement

Nudging is becoming increasingly significant in the digital context as more and more decisions are made online, such as purchases, vacation bookings, insurance, and so on. The use of user-interface design features to direct people's behavior in digital choice scenarios is known as electronic nudging. It is important to note, however, that it is only a subtle sort of influence that protects people's freedom of choice. Websites or mobile applications are examples of digital choice settings[5]. While Nguyen[6] argued that digital nudges was designed in a way that influences users' behavior in digital choice settings is referred to as digital nudging. Users must make judgments and decisions in choice contexts,

which are issues that individuals face every day, whether they are shopping online or filling out online forms for e-government or e-banking. The growing use of information technologies - social networks, e-commerce websites, smartphone apps, and so on - has enriched our lives by allowing us to make frequent decisions in virtual, online settings.

On the other hand, Djurica and Figl[7] stated that until recently, research on nudges in offline choice contexts had been limited. The field of information systems research is becoming increasingly interested in the topic of digital nudging. Designers of online choice settings try to sway people's decisions by encouraging them to be more socially responsible, protect the environment, or live a healthier lifestyle, for example. Defaulting, splitting alternatives based on distinct criteria, or star ratings are some of the nudging tactics used by designers, or choice architects, when creating such choice environments Mirsch[8] and Kaiser[9] also supported the same idea.

Model and Hypotheses

Bearing in mind the previous debate, researcher was able to build the following model in order to highlight the relationship between variables of study as following:

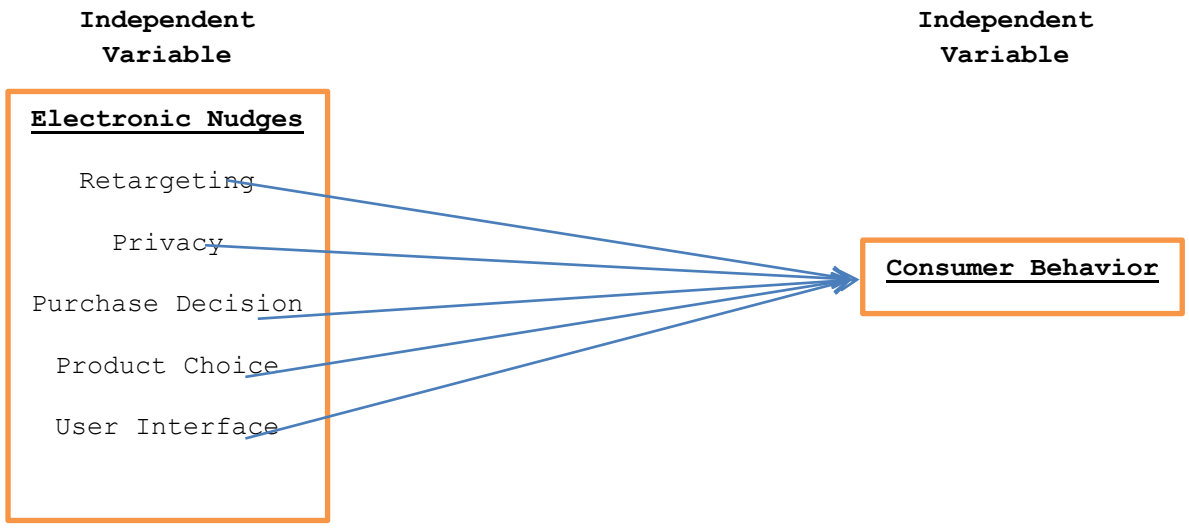

Figure-1: Study Model Eigenbrod and Janson [5]; Nguyen [6]; Djurica and Figl [7]; Mirsch [8]; Kaiser [9]

Hypotheses Development

The idea of nudges is based on returning the customer's attention or drawing his attention to a marketing process, either he was thinking about it, or he adopted it for a certain period but it is incomplete, and from here, the nudges exist as a method that prompts the customer to remember the marketing process that was his intention, or Alert him to one of the products or services he was looking for previously and did not make the purchase[5]. As Kaiser[9] indicated that the nudges constitute one of the methods that retarget the market, which is the retargeting process. Here, the site saves the information of the customer who has browsed previously, and then comes back later to remind him of the product or service he browsed previously. Therefore, the task of retargeting here is to retarget the customer and attract him towards the marketing process.

Djurica and Figl[7] referred to the idea of privacy that the idea of e-nudges can override by communicating with the customer and thus deprive him of making the purchasing decision on his own, as the nudges psychologically push him to make the purchasing decision, and also access his information such as e-mail, Personal information, or even phone numbers if any.

Nguyen[6] the idea of nudges facilitates the process of reaching the customer through the product itself, i.e. the site creates matrices through which it is defined that the customer is interested in a particular type of product or brand, and therefore, the nudges contribute to drawing the customer’s attention to the products that interest them or suits them or those brands they love, and accordingly you push him to complete a purchase that may be impulsive or emotional, and here the effect of nudges appears through the quality of the product or its brand.

Mirsch[8] also indicates the importance of the user interface in pushing the customer towards completing any purchase process, as the attractiveness of the application or website, ease of use and browsing, its effectiveness and the diversity of its elements constitute one of the important axes that increase the chances of completing purchasing operations of various kinds based on the nudge has reached the customer, and the electronic customer is usually referred to as a person (irritable), that is, they an electronic purchase because they prefer their comfort to move between shops and try to search for the product they wants, and this customer prefers their comfort and shopping online so, it is a fortiori that the purchasing site or application helps to shop through colors, methods of race, multiple methods of customer assistance and many more.

From above model and hypotheses development, researcher was able to extract the following set of hypotheses:

H: E-nudges have a positive influence on consumer behavior
H1: Retargeting has a positive influence on consumer behavior
H2: Privacy has a positive influence on consumer behavior
H3: purchase decision has a positive influence on consumer behavior
H4: Product choice has a positive influence on consumer behavior
H5: User interface has a positive influence on consumer behavior

Literature Review

Consumer Behavior

According to Agarwala[10], consumer behavior is the pattern followed by the consumer in his behavior to search, purchase, use or evaluate goods, services and ideas that he expects to satisfy his needs and desires. Shaw and Bagozzi [11] stated that consumer behavior demographic data give indicators to understand the nature of consumer behavior, and can answer two questions: Who is the consumer? Where do we find the consumer, and to answer the question why the consumer buys Why? One of the most important theories that have been exposed to this is the behavioral theory, which emphasizes that consumer behavior is according to the psychological structure that depends on the study of a group of individual and collective influences affecting consumer behavior.

Nudging and E-Nudges

Nudging is becoming a popular tactic for policymakers to employ to influence people's behavior. When understanding of psychological dynamics is applied to build a choice context, it is called a nudge [12]. According to Hagman[13], the public's acceptability of nudges can be gauged in a variety of ways. It could be claimed, for example, that acceptance should be judged by adherence to the desired behavior change. This, however, poses a concern for two reasons. The first is that bad nudge design could be misinterpreted as non-acceptance. Another factor is that some nudge strategies may be overlooked by the person being nudged.

Xiong and Wu[14] argued that when people learn that their conduct has been deliberately interfered with "for their own good," it's not unreasonable to think that they will perceive this as manipulative, condescending, and unacceptably harsh. On the other hand, Yu[15] stated that although nudge acceptance can be viewed as a proxy for behavior change; it is not fair to assume that nudge acceptance is solely based on behavior. Acceptance of nudges is critical for two reasons: first, without it, targeted behavioral change is less likely to work, and second, it is difficult to argue that a society that uses unacceptable nudges (i.e. manipulation) to modify citizens' behavior can be called democratic.

Narayanan and Kalyanam[16] said that the nudge idea, which was derived from behavioral economics, is based on people's illogical behavior. Any feature of the choice architecture that modifies people's behavior in a predictable way without prohibiting any options or significantly altering their economic incentives is referred to as a nudge. Nudging is the process of using nudges to design choice architecture. The nudging notion was previously focused mostly on offline contexts and is now used in practically every aspect of life, including health care and medical politics. One well-known example of nudging is the use of default options as part of organ donation systems, where switching from opt-in to opt-out leads to a change in behavior[17].

From another perspective, Eigenbrod and Janson[5] argued nudges are a cornerstone of behavioral economics, a science that blends psychology and economics to better understand and guide people's decision-making processes. When used correctly, nudges can help people make better decisions. Digital technologies increase the scope and speed of nudges, making them a viable tool for change management in any size firm. Companies must positively impact the behavior of thousands of employees of all types to keep up with today's fast-paced changes in the workplace and the

nature of work, which are explored in the New Way of Working Series. Digital nudges that are well-designed and personalized can help.

Methods

Reaching aim of study was achieved through employing the quantitative approach. For that sake, a questionnaire was designed in order to get the primary data. The questionnaire was built on liker 5 scale 1 totally disagree, 2 disagree, 3 neutral, 4 agree, and 5 totally agree. The questionnaire consisted of two main sections; the first took into perspective demographics of study sample, while the other contained statements related to study's variables.

Population of study was al consumer within the Jordanian market, the questionnaire was uploaded online due to COVID 19 health precautions, the aim was to get responses from consumers up to (500) individuals. After application process, researcher was able to retrieve (44) properly filled questionnaires which gave a ratio of (88.8%) statistically accepted.

SPSS v. 23rd was used in order to screen and analyze the gathered primary data, Cronbach's Alpha was used in order to test reliability of study tool, it was found that alpha value= 0.947 was greater than accepted percent 0.60 which reflected the reliability of the scale.

- Descriptive Statistics (mean, percentage, frequency, standard deviation)
- Multiple Regression
- Linear Regression

RESULTS

Demographic Results

Table-1: Sample Mean and Frequency

Gender		
	f	**%**
Male	330	74.3
Female	114	25.7
Age		
18-28	30	6.8
29-39	109	24.5
40-50	165	37.2
+51	140	31.5
Educational Level		
BA	225	50.7
MA	169	38.1
PhD	50	11.3
Income		
Less than $500	25	5.6
$501-$999	65	14.6
$1000-$1499	176	39.6
More than $1500	178	40.1
Total	444	100.0

In table-1, sample characteristics were calculated as according to respondents who dealt with the questionnaire. It can be seen that majority of respondents were males forming 74.3% compared to females who only formed 2.7% of the sample. In addition to that, majority of 37.2% of total sample were within the age range of 40-50 years old while the youngest of the sample formed the least who responded to the questionnaire forming 6.8% for individuals within age range of 18-28 years old.

Also, table-1 above showed that majority of sample responded to questionnaire held BA degree forming 50.7% of total sample with an income of more than $1500 forming 40.1% of total sample compared to least income for those who earned less than $500 forming 5.6% of total sample

Table-2: Questionnaire Analysis

	Mean	Std. Deviation
Electronic Nudges		
Retargeting		
I always get nudges on items I like	3.86	1.084
I get nudges from websites I usually browse in every occasion	3.98	1.085
Many purchases I have made because of sudden nudges	3.77	1.103
I am aware that nudges were meant to me	4.03	1.062
I purchase the item usually from a nudge, I don't mean to shop online	3.82	1.062
Privacy		
I don't like nudes it invades my privacy	4.27	.787
It is not accepted when I am watched in every browse I make	4.01	.985
Because of nudges I usually don't take the purchase decision	4.22	.735
Nudges are a normal e-marketing approach	4.18	.914
I don't accepted cookies from websites I usually shop through	4.08	.758
Purchase Decision		
Many purchase decisions were made because nudges reminded me	4.35	.681
I look for every nudge I get as they are usually in total match with my preferences	4.37	.697
I depend on nudges as I don't have time to shop	4.24	.659
I keep getting nudges that my cart isn't complete yet	4.37	.751
Many nudges pushed me to make impulsive purchases	3.93	.987
Product Choice		
I respond only to judges that related to my preferences	4.28	.849
Nudges are on in my phone/PC for only products that interest me	4.02	.986
I look at every nudge that I get, there might be something that I like	3.97	1.026
Nudges are very annoying	3.95	.851
Most of my online purchasing decisions are made due to nudges	4.32	.689
User Interface		
Nudges are easy to follow my favorite items on the website	3.89	.744
I like when I get a notification that my item is on sale	4.08	.844
I enjoy shopping through mobile more than PC	4.16	.896
Themes, colors and looks of a website makes a difference for me	4.19	.741
I am always interested in nudges as I get more engaged in the shopping process	3.83	1.086
Consumer Behavior		
I do most of my shopping online	3.60	1.191
I depend on website notifications to remind me of what I want	3.77	1.290
I prefer shopping through mobile application that a computer interface	3.83	1.345
Applications notifications are always on for me	3.85	1.257
I don't give that much attention to notifications from shopping websites	3.52	1.405

In table-2 above, mean and standard deviation was calculated for responses of individuals regarding presented statements. It appeared that respondents had positive attitudes towards statements of questionnaire given that all means scored higher than mean of scale 3.00 which is statistically positive. The most positively answered statements was articulated "I look for every nudge I get as they are usually in total match with my preferences" scoring a mean of 4.37/5.00 compared to the least positively answered statement articulated "I don't give that much attention to notifications from shopping websites" scoring a mean of 3.52/5.00 which was the lowest but also statistically positive.

The same tests were run on variables in general as it can be shown in table 3 below. It can be seen that all variables scored higher than mean of scale 3.00 which was statistically considered to be positive. Going deeper into the table, it showed that the most positively answered variable was purchase decision scoring a mean of 4.25/5.00 compared to the least positively answered but positive variables which was consumer behavior which scored 3.71/5.00.

Table-3: Variables' Mean and St Deviation

	Mean	Std. Deviation
Retargeting	3.8932	.92658

Privacy	4.1518	.70568
Purchase Decision	**4.2518**	.60868
Product Choice	4.1072	.75461
User Interface	4.0293	.66986
Consumer Behavior	**3.7131**	1.18307

Hypotheses Testing

H: E-nudges have a positive influence on consumer behavior

Table-4: Main Hypothesis Testing

Model Summary						
Model	R	R Square	Adjusted R Square		Std. Error of the Estimate	
1	.641[a]	.410	.404		.91353	
ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	254.516	5	50.903	60.995	.000[b]
	Residual	365.529	438	.835		
	Total	620.044	443			
Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.577	.345		1.674	.095
	Retargeting	-.269	.082	-.211	-3.295	.001
	Privacy	.182	.112	.109	1.631	.104
	Purchase	-.456	.124	-.235	-3.680	.000
	Choice	-.257	.141	-.164	-1.823	.069
	Interface	1.594	.102	.903	15.609	.000

Multiple regression was used to test above hypothesis, r = 0.641 reflects **high relationship** between the independent variables and the dependent variable. Also, it was found that the independent variables explained **41%** in the variance of the dependent variable. Also it was found that F value was significant at 0.05 level, that meant E-nudges have a positive influence on consumer behavior.

H1: Retargeting has a positive influence on consumer behavior

Table-5: 1st Hypothesis Testing

Model Summary						
Model	R	R Square	Adjusted R Square		Std. Error of the Estimate	
1	.235[a]	.055	.053		1.15138	
ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	34.097	1	34.097	25.721	.000[b]
	Residual	585.947	442	1.326		
	Total	620.044	443			
Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.547	.236		10.782	.000
	Retargeting	.299	.059	.235	5.072	.000

Linear regression was used to test above hypothesis, r = 0.235 reflected **low relationship** between the independent variable and the dependent variable. Also, it was found that the independent variable explained 5.5% in the variance of the dependent variable. Also it was found that F value was significant at 0.05 level, that meant Retargeting has a positive influence on consumer behavior

H2: Privacy has a positive influence on consumer behavior

Table-6: 2nd Hypothesis Testing

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate

1	.248[a]	.061	.059			1.14749
ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	38.050	1	38.050	28.897	.000[b]
	Residual	581.994	442	1.317		
	Total	620.044	443			
Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.989	.325		6.113	.000
	Privacy	.415	.077	.248	5.376	.000

Linear regression was used to test above hypothesis, r = 0.248 reflected **low relationship** between the independent variable and the dependent variable. Also, it was found that the independent variable explained 6.1% in the variance of the dependent variable. Also it was found that F value was significant at 0.05 level , that meant Privacy has a positive influence on consumer behavior

H3: purchase decision has a positive influence on consumer behavior

Table-7: 3rd Hypothesis Testing

Model Summary						
Model	R	R Square		Adjusted R Square		Std. Error of the Estimate
1	.192[a]	.037		.035		1.16238
ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	22.850	1	22.850	16.912	.000[b]
	Residual	597.195	442	1.351		
	Total	620.044	443			
Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.127	.390		5.457	.000
	Purchase	.373	.091	.192	4.112	.000

Linear regression was used to test above hypothesis, r = 0.192 reflected **low relationship** between the independent variable and the dependent variable. Also, it was found that the independent variable explained 3.7% in the variance of the dependent variable. Also it was found that F value was significant at 0.05 levels that meant purchase decision has a positive influence on consumer behavior

H4: Product choice has a positive influence on consumer behavior

Table-8: 4th Hypothesis Testing

Model Summary						
Model	R	R Square		Adjusted R Square		Std. Error of the Estimate
1	.282[a]	.079		.077		1.13636
ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	49.282	1	49.282	38.165	.000[b]
	Residual	570.762	442	1.291		
	Total	620.044	443			
Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		

1	(Constant)	1.898	.299		6.352	.000
	Choice	.442	.072	.282	6.178	.000

Linear regression was used to test above hypothesis, r = 0.282 reflected **low relationship** between the independent variable and the dependent variable. Also, it was found that the independent variable explained 7.9% in the variance of the dependent variable. Also it was found that F value was significant at 0.05 level, that meant Product choice has a positive influence on consumer behavior

H5: User interface has a positive influence on consumer behavior

Table-9: 5th Hypothesis Testing

Model Summary						
Model	R	R Square	Adjusted R Square		Std. Error of the Estimate	
1	.581[a]	.337	.336		.96409	
ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	209.214	1	209.214	225.088	.000[b]
	Residual	410.830	442	.929		
	Total	620.044	443			
Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.421	.279		-1.506	.133
	Interface	1.026	.068	.581	15.003	.000

Linear regression was used to test above hypothesis, r = 0.641 reflected **medium relationship** between the independent variable and the dependent variable. Also, it was found that the independent variable explained 33.7% in the variance of the dependent variable. Also it was found that F value was significant at 0.05 level, that meant User interface has a positive influence on consumer behavior

DISCUSSION

The current study aimed to highlight the relationship between electronic nudges and consumer behavior through examining variables of (Retargeting, Privacy, Purchase Decision, Product Choice and User Interface), depending on quantitative approach, a questionnaire was uploaded online and primary data was gathered from (444) consumer in Jordan. SPSS 23rd V was used in order to examine the relationship between variables through screening and analyzing the gathered primary data. Results of study were able to reach following findings:

- There appeared a high level of relationship between electronic nudges and consumer behavior and this relationship scored a variance of 41%
- Adopted variables including (Retargeting, Privacy, Purchase Decision, and Product Choice) scored a low relationship to the dependent variable except for the sub variable of user interface which scored a medium relationship with a variance of 33.7%.
- Results indicated that variables gathered are stronger than taking them individually, meaning that the influence of e-nudges is more powerful along with all the variables than them separated.

Referring to the results of the study, a conclusion was reached that the main hypothesis was accepted, which indicates the existence of a positive relationship between e-nudges and consumer behavior. This relationship was found by analyzing the relationships between the variables adopted in the e-nudges and consumer behaviors that the researcher assumed which agreed with results from Eigenbrod and Janson (2018). And here it can be said that the idea of e-nudges contributes greatly to influencing consumer behavior, and here we do not refer to the need for the effect to be positive, but rather it can be negative by attacking one way or another the user's privacy by sending nudges or manipulating the customer's personal information by saving it and sending marketing campaigns through it just as Kaiser (2018) noted before.

In one way or another, and agreeing with Djurica and Figl (2017) and Nguyen (2019); the study was able to prove that it is not necessary that all consumers' purchasing decisions are rational decisions, as the emergence of the idea of nudge proved the incorrectness of this theory and that rational decisions that consumers can take may contribute in one

way or another to changing This is in view of the psychology and behavior that contradict this theory and prove that the consumer may be affected by electronic nudges and push him towards making an irrational decision.

The study also proved that the idea of electronic nudges is to change the environment in which the consumer is located in order to bring about new behaviors and modern behavior patterns on the consumer that may push him to act in some way in front of a particular product or service, which also agreed with Mirsch et al (2017).

CONCLUSION AND RECOMMENDATIONS

The increasing reliance on e-marketing as a means for the consumer to reach everything he wants is increasing dramatically, especially with the conditions that accompanied the spread of the Covid-19 pandemic, which prompted consumers to rely entirely on e-shopping in order to access the products and services they desire. Consequently, it has become imperative for organizations to find electronic means and solutions to attract and maintain customers by all available means. From here, we find the idea of electronic nudges, which contributed to targeting and retargeting customers, in addition to relying on other electronic means that can increase the effectiveness of electronic shopping and give it tools and means that increase the conviction of individuals to use it, such as security, privacy and various payment mechanisms.

Therefore, the current study represents a way for marketers to increase their awareness of the importance of simple electronic tools such as e-nudges and many others, which would increase the possibility of making a purchasing decision by the customer, especially with the increasing reliance on electronic shopping through various sites and applications and The reluctance of individuals to go for physical shopping in the markets, given that online shopping comes with the same result, but it gives more comfort.

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