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A multi-attribute examination of consumer conformity in group-level ordering ☆

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ABSTRACT

Using real data acquired from transaction receipts at a cafe, the present research examined individuals' menu choices made in a group setting. Building on previous research, the present research proposed and examined what we call the group referencing effect, and found that individuals' menu choices were more likely to conform to the precedent menu choices made by the others in their group. A unique empirical contribution of the present research is that conformity was assessed and emerged at two levels: end-choice level (whether the choices are the same) and attribute-level (whether the attribute(s) of the choices are the same, independent of whether the end-choice is the same; i.e., similarity). Theoretical and practical implications are discussed.

CHINESE ABSTRACT

本研究通过在咖啡馆交易收据中获得的真实数据, 探讨了个人在群体环境中进行的菜单选择. 在之前研究的基础上, 本研究提出并探讨了我们所谓的群体参照效应, 并发现个人的菜单选择更有可能跟从所属群组中其他人先行做出的菜单选择. 本次研究的一项独特的实证性贡献是, 从众性的评估和出现分两个层面:最终选择层面 (选择是否相同)和属性层面 (选择的属性是否相同, 这独立于最终选择是否相同, 即相似性). 理论和实践影响均得到探讨.

1. Introduction and research overview

Consumers often make an individual choice in a group setting in which group members make their choices sequentially. An example of such purchases can be illustrated as follows: At a café with friends or co-workers, each person orders a beverage for themselves from the cashier at the register, one person after another. Compared to a non-group setting, how are decisions made by individuals in such a group setting different? Do consumers' individual choices tend to conform to or diverge from the choice of another consumer in the group (i.e., the consumer who made the choice earlier)?

Previous research has suggested that the decision outcome and the overall satisfaction of a decision made in a group setting are different from those made in individual settings. Previous research has examined consumers' individual choices in group settings and showed that one's choice is influenced by another consumer's choice. Understandably, the research results on the particular directions of consumer responses (conformity vs. divergence) that have largely been mixed, with ample research illustrating both conformity and divergence (e.g., Ariely and Levav, 2000; Quester and Steyer, 2010; Ratner and Kahn, 2002). For example, Ariely and Levav (2000) found that decision-makers in group decision situations showed a variety-seeking tendency rather than uniformity, resulting in ordering a different dish from that of other group members' at the same table. In addition, Quester and Steyer (2010) suggested that seeking group uniformity (vs. variety) could be prevalent only when other members' orders are only moderately different from one another.

In this paper, we will extend the previous literature on group variety and uniformity by showing empirical findings that group uniformity (vs. variety) is dominant. Our findings are different from the findings of Ariely and Levav (2000)[1]. Our paper makes a unique contribution. That is, unlike the conventional method used

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[1] The reasons for this difference will be discussed in the general discussion.

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1441-3582/

in previous literature, we measure conformity at multiple levels. Conformity (or lack thereof; i.e., divergence) in a group setting can occur at two levels. Conformity can emerge at the end-choice level – that is, the consumer makes the exact same choice as another consumer (iced Americano and iced Americano). In addition, conformity can emerge at the attribute level – that is, even when the end-choice is different, the attributes (e.g., iced vs. hot) of the chosen product can conform to the attribute of another consumer's choice (1st consumer's choice: Iced Americano; 2nd consumer's choice: iced rather than hot Latte). Previous literature has mostly examined conformity at the end-choice level. We contribute by going deeper to understand the nature of the conformity. In fact, we created a multi-attribute, similarity/dissimilar index, which takes account of multiple attributes and assesses the extent of similarity on a continuum (rather than as a simple dichotomy). Thus, this multi-attribute approach is much more detailed. Further, strength of the present research is that we examined our model with a field data acquired from real coffee shop instead of using a lab experiment.

Furthermore, we will ultimately introduce the concept of a 'group referencing effect,' describing a phenomenon that the item ordered later is similar to the previously ordered item(s) and implying that the earlier ordered item(s) could be a reference point for the decision-makers who order subsequently. In the next section, we describe the related literature and discuss our main predictions.

2. Group decisions and main predictions

2.1. Decisions in the group setting

Researchers have suggested that individual decisions in a group setting are quite different from those made in non-group settings or when an individual is alone (e.g. Ariely and Levav, 2000; Quester and Steyer, 2010; Ratner and Kahn, 2002). For example, Asch's (1955) classic experiment clearly shows that an individual can display a group conformity response under group pressure, such as agreeing to a wrong answer when all other members previously answered the same wrong answers. The impact of group pressure or group norms on the individual's decision-making could be conceptualized as 'normative influence', defined as "the desire to conform to the expectations of others (Kaplan and Miller, 1987, p. 306). The influence of group normative influence generally results in similar decision outcomes among group participants, resulting in group polarization (e.g., see Lamm and Myers, 1978). In sum, the literature suggests that the individual decision-maker in a group setting (vs. non-group setting) generates decision outcomes that are similar to other members' decisions.

However, the group pressure or norm can generate decision outcomes that are dissimilar to other members. For instance, in marketing situations, Ratner and Kahn (2002) found that overall variety-seeking was stronger in the public consumption situations than in private. In other words, the variety-seeking tendency was enhanced when others could observe the decision-makers' choice. More directly, Ariely and Levav (2000) investigated the impact of groups in individual decision-making. Ariely and Levav (2000) suggested that individual decision-making in group settings is different from that in settings where an individual is alone. They investigated the menu choice in the group setting in a restaurant context. Based on a self-presentation goal and an information-gathering goal, they suggested that the decision outcomes in a group setting showed group-variety. They found group-variety (i.e., the actual orders on the same table contained higher levels of different items than expected from the random sample) [vs. group consistency] in various settings such as a Chinese restaurant, wine selection, and beer choice. In addition, they suggested that individual decision-makers who chose different items to accomplish group variety, were less satisfied (than those who acted otherwise) with their overall experience. This implies that group variety involves an individual sacrificing their preference. Quester and Steyer (2010) extended Ariely and Levav's (2000) research and suggested that seeking group uniformity (vs. variety) could be dominant when other members' order is moderately different. Only when other members' order on the same table is extremely same (homogenous) or extremely different, will they seek group variety. In sum, the decision making in the group setting clearly showed group variety, especially in the Western cultures.

2.2. Main prediction: Group referencing effect

In this paper, we introduce the concept of the 'group referencing effect,' describing a phenomenon in which the later ordered item tends to be similar to that preceded them, implying that the items ordered earlier could serve as a reference point. The group reference effect is supported by three research streams: (i) social default option, (ii) behavioral mimicry, and (iii) balancing group harmony and individual uniqueness.

2.2.1. Social default option and anchoring and adjustment heuristics

Recently, Huh et al. (2014) suggested that decision-makers who simply observe others' choices could be influenced by that observation. Specifically, they argue that observing others' choices could 'exogenously create default options (p.748)' and the choice made by others could be a social default. Put differently, the option chosen by other members could later be a default for the decision-maker. In this situation, moving away from the default could generate a relatively high level of loss, since people might perceive the default alternative as the reference alternative. Based on the principle of loss aversion (Brown and Krishna, 2004; Chapman and Johnson, 1999) of default option, we might expect that individuals in group settings could use other members' choices as a social default and follow them in their decisions. Related to the role of another's choice as a default option, the social default could be related to the anchoring and adjustment heuristic (Park et al., 2000). That is, people tend to stay with the anchored default option; they are even reluctant to abandon the default option and move to some other option that could be closer to their ideal point. Based on this concept, we might expect that individuals in the group setting could choose similar options with other members' chosen options.

2.2.2. Behavioral mimicry

People have a tendency to mimic other's behavior (Cialdini and Goldstein, 2004). Furthermore, mimicry phenomenon can occur on a nonconscious level wherein people tend to mimic others' behaviors without intention or awareness (e.g. Chartrand and Bargh, 1999). One of the main reasons for mimicry is based on the social reason such as developing rapport in a group (e.g. Chartrand et al., 2005). Similarly, Liu et al. (2013) suggest that social factors can influence individual choice. They found that matching was higher when required to make decisions for stigmatized others, because they wanted to reduce the possibility of offending them. In sum, based on the theory of behavioral mimicry, we might expect that individuals try to match their choice outcome with other members' choices, resulting in a group uniformity tendency rather than a group variety tendency.

2.2.3. Balancing group harmony and individual uniqueness

In the reaction to group influence in decision-making, people have two different motivations: motivation for uniqueness and motivation for conformity (e.g., Hornsey and Jetten, 2004; Nail, 1986; Tian et al., 2001). The uniqueness motivation in consumption could

be defined as "a motivation for differentiating the self through consumer goods and the visual display of these goods" (Tian et al., 2001, p. 52). It is "a positive striving for differentness relative to other people (Snyder and Fromkin, 1977, p. 518). The conformity motivation is related to the tendency to follow the group norm or expectation (Burnkrant and Cousineau, 1975; Griskevicius et al., 2006; Venkatesan, 1966). The concept of conformity motivation is thus the opposite to that of uniqueness motivation (Nail, 1986).

Previous literature suggests that people compromise between the two competing motivations (e.g., Berger and Heath, 2007, 2008; Brewer 1991; Cialdini and Goldstein, 2004; Van Herpen et al., 2014). For example, Brewer (1991, p. 477) suggested 'optimal distinctiveness theory' to imply the importance of balancing two goals. Berger and Heath (2007) also provided empirical evidence that consumers pursued two motivations by compromising two goals such as wearing unique clothes that also show their identity. Based on the balancing strategy, we expect that individuals in a group setting could choose similar options with other members. In sum, based on the three related theories, we expect that individuals will choose similar options with other members in the group setting.

2.3. Multi-attribute approach and main prediction

In this paper, we will analyze the data from a café with 50+ options. Each option has multiple attributes including price, calories, menu sub-category, product characteristics, or even, physical distance on the menu board. Because our data provides detailed information on each individual item's attribute levels including physical location of menu board, hot/cold, price, calories, etc., we also searched literature on individual consumer choice decisions such as conjoint or bundling. In consumer's bundling decision (or multi-item choice decisions), a consumer is assumed to choose products based on the utilities of a product's attributes (Bradlow and Rao, 2000; Chung and Rao, 2003; Farquhar and Rao, 1976; Kim et al., 2014; McAlister, 1979). According to the balance model suggested by Farquhar and Rao (1976), the utility of a bundle is based on some measure of 'balancing attributes', which is either 'equibalancing' or 'counterbalancing'. Equibalance attributes are those that the consumer wants to minimize between products, whereas counterbalancing attributes are those that maximize the difference.

In a group choice setting, decision-makers in a group may want to balance attributes in items in a menu as a group. For instance, if the previous person ordered a cold ice cream with high calories, then the next person may want to order hot coffee which has counterbalancing attributes, i.e., cold vs. hot. Alternatively, the next person may order a cold frappe which has equibalancing attributes, i.e., ice cream and frappe. In an empirical setting, we will be able to identify which attributes are considered equi- or counterbalancing attributes in a group decision setting. If group decision-makers focus more on equibalancing attributes, items in a menu must look similar in terms of attributes (group conformity). If, however, group decision-makers focus more on counterbalancing attributes, the group decision outcomes must show diversity in terms of attributes (group variety).

Previous researchers focused more on whether consumers make a group variety/uniformity seeking choice as a whole, and less on comparing the relative strengths among multiple product attributes that a consumer choice can conform to or be different from another person's choice. Our paper will suggest that people in a group setting where there are multiple options with various attributes, will choose similar options with other group members. The similarity could be achieved in the attributes' level, such as replicating few attributes, but differentiating other attributes. For example, if one person ordered the 'hot Americano coffee', the other person, later, might order the 'iced Americano' rather than 'Cappuccino.' In this case, the second person's order was different from the first person in terms of the menu itself (showing group variety), but quite similar to the first person in terms of the multi-attribute level (showing group referencing effect/ or group similarity). Based on the group referencing effect in the multi-attribute setting, the following formal hypothesis is defined based on the above discussion:

Main hypothesis. *People in a group setting will choose similar options with other members' chosen options on various attribute levels.*

3. Empirical study

3.1. Method

We gathered transaction receipts from a café located in a large university in Korea. The majority of the usual customers of this Café were residents of the university, including students, professors, and staff members. With the help of the café manager, we collected all transaction receipts for a one-week period (August 5th to August 11th, 2016). A total of 908 receipts were collected. Among these, 340 receipts were for orders made in groups. Fig. 1 is an example of a receipt. Each receipt had information on the name, price, number of beverages, and most importantly, the ordering sequence information of all beverages ordered (the top row is the first-ordered product). Each receipt was for an order paid for by one medium of payment (e.g., cash, credit card).

3.2. Menu attributes

We assessed five attributes regarding each order: (i) price, (ii) calorie of each order, (iii) menu sub-category, (iv) menu characteristics in terms of coldness (e.g. iced or hot), and (v) physical distance on the menu board.

Price information was captured from the receipts. Calorie information was not provided by the café so we collected from seven other major coffee retailers in Korea (e.g., Starbucks; Detailed information is available in Supplemental Material). The calorie information across seven coffee retailers was largely consistent. The menu sub-category was provided by the café and was displayed in the store as shown in Fig. 2. The number of subcategories in the café was 7 (i.e., Coffee, Ade/Iced Tea, Hot Chocolate/Latte/Fruit Juice, Bubble Tea/Soda, Herb/Tea, Frappe, and Coffee Fan Frappe). The menu also varied in terms of coldness. We categorized the options in three different levels (i.e., Iced, Smoothie/Frappe, Hot/Others). Finally, the menu was displayed on 6 different physical menu boards, displayed horizontally at the top of order desk (see Fig. 2 for the example of a menu board).

3.3. Calculating index for group decisions

To measure variety (or conformity) tendency in group choice settings, we introduced two indices: 1) V-index borrowed from Ariely and Levav (2000) and 2) D-index, a modified version of Euclidian distance. Ariely and Levav (2000) suggested 'V-index' (variety index), which is calculated as in Equation 1. The index is bounded between 0 and 1. When all items in a single order are the same, V-index is zero (0). When all items are different, V-index is one (1).

$$\text{V-index}(V) = \frac{Number\ of\ unique\ items\ in\ an\ order - 1}{Number\ of\ all\ items\ in\ an\ order(n) - 1} \quad (1)$$

We also computed a new index called D-index based on Euclidian distance as in Equation 2. We identified each menu item and used levels of each attribute as coordinates of each item. We first

Original Korean Receipt

영 수 증

상 호: 팬도로시_울산유니스트 1호점
사업자번호: 107-86-09325 대표자: 이규홍
주 소: 울산 울주군 언양읍 유니스트길 50
전화번호:

2016년08월08일 13:28 No:0068 01-점장

메 뉴 명	단가	수량	금액
ICE아메리카노	2,000	1	2,000
ICE카푸치노	2,500	1	2,500

판 매 금 액 4,500
과세상품금액 4,091
부가세(VAT)금액 409

받 을 금 액 4,500
내 신 금 액 4,500
신용카드 4,500

진동벨번호 : 13

Interpreted in English

RECEIPT

Store: Pan Dorothy, Ulsan UNIST #1
Store number: 107-86-09325, Manager: Lee
Address: Unist St. 50, Ulju-Gun, Ulsan

08/08/2016, 13:28 No:0068 01-Manager

Menu	Price	Quant.	Total price
Ice Americano	2,000	1	2,000
Ice Cappuccino	2,500	1	2,500
Total price			4,500
	Before tax		4,091
	Tax (VAT)		409
Total price			4,500
Amount of pay			4,500
	Credit card		4,500

Order Number:13

Fig. 1. Example of actual receipt.

Fig. 2. Example of menu board.

computed distances between all pairs of each item, i and j, (d_{ij}) in an order ($N_d = {}_nC_2$). If an order consisted of 5 items, the total number of distances (N_d) becomes 10 ($={}_5C_2$). Then, the average of all distances within a single order was computed as D-index.

$$\text{D-index}(D) = \frac{\sum d_{ij}}{N_d} \quad (2)$$

where $d_{ij} = \sqrt{\sum (a_{ik} - a_{jk})^2}$ for all attributes k of item i and j.

Following Ariely and Levav (2000), we generated random orders (n = 1,000)[2] by shuffling the original menu order items, and calculated both indices for the original menu as well as for the randomly generated menu. The randomly generated menu assumes independence from every item in a single menu and thus was used as a control group.

4. Analysis and results

4.1. Descriptive statistics

A total of 340 drink orders in a group setting (n > 1) were included in analyses. We averaged all orders with five or above because the frequency was low (Table 1).

For more detail analyses, we dissected each item in a menu in terms of its attribute levels. For instance, the actual location of each item on the menu board and each section of menu location are defined by numbers from menu board #1 to #6. Items in menu board #1 and those in menu board #6 are physically furthest apart from each other. In addition, each item was categorized in terms of a menu sub-category such as coffee, juice, etc. Drinks are also categorized in terms of coldness such as 'iced', 'smoothie/frappe', or 'others'. Table 2 shows the basic statistics for each attribute.

4.2. Group conformity and uniqueness index

Fig. 3 shows distributions of V-index and D-index for both original and randomly generated menu orders (n = 1000). First, we can easily see that original orders have many homogeneous items in a single order (i.e., greater conformity) compared to those in random orders in terms of V-index (Actual V = 0.587 vs. V from random order = 0.773). This result of group-uniformity is opposite with Ariely and Levav (2000). Second, because some attributes have very large unit values (e.g., price = 4000 won [$4]), D-index could be inflated. Thus, we standardized the values of those attributes which were used to compute the D-index. We also found similar patterns for

[2] Ariely and Levav (2000) used n = 100 and we increased sample size to n = 1000 for more robustness.

Table 1
Menu size and its average statistics.

Group Size	Frequency	%	Average Price (Korean Won)	Average Calories
2	239	70.29%	2529.1	143.5
3	49	14.41%	2546.3	142.8
4	28	8.24%	2624.1	147.5
5	7	2.06%	2860.0	194.5
6	5	1.47%	2446.7	126.0
7	0	0.00%	–	–
8	4	1.18%	2531.3	121.8
9	1	0.29%	2911.1	157.5
10	2	0.59%	2260.0	79.8
11	4	1.18%	2261.4	72.5
12	0	0.00%	–	–
13	1	0.29%	2307.7	89.6
Total	340	100%	–	–

Table 2
Basic statistics across three attributes.

(a) Menu sub-category

Menu Sub-category	Coffee	Ade/ Iced Tea	Hot Chocolate/ Latte/Fruit Juice	Bubble Tea/ Soda	Herb/Tea	Frappe	Coffee Fan Frappe	Total
Frequency	658	63	62	24	4	94	15	920
%	71.52%	6.85%	6.74%	2.61%	0.43%	10.22%	1.63%	100%

(b) Menu characteristics in terms of coldness

Menu Characteristics	Iced	Smoothie/Frappe	Others	Total
Frequency	662	107	151	920
%	71.96%	11.63%	16.41%	100%

(c) Menu location on the physical menu board.

Menu Location	Board #1	Board #2	Board #3	Board #4	Board #5	Board #6	Total
Frequency	627	94	62	28	94	15	920
%	68.15%	10.22%	6.74%	3.04%	10.22%	1.63%	100%

D-index in the original menu orders that have more similar items in a single order (i.e., greater conformity) compared to those in random orders in terms of multiple attributes. (Actual D = 1.682 vs. D from random order = 2.448). Although two indices have different formulas, they show consistent results that consumers become uniformity seeking in a group choice decision, regardless of the measures used.

4.3. Group conformity and uniqueness index across different group sizes

We then divided orders into different sizes and computed two indices. For the V-index, as order size increases, V-index decreases (see Table 3). This implies that more group conformity emerges as the order size increases in general. This pattern is observed in both original orders and random orders. However, D-index shows mixed patterns as in Table 3.

To test whether group conformity is larger compared to the control group (random orders), a series of paired sample t-tests were conducted for both indices. Regardless of order size, original menu shows significantly higher conformity, i.e., smaller indices. This is proved for both V-index and D-index.

4.4. D-index across different attributes

We also computed D-index for each attribute (see Table 4). It shows that D-indices are smaller (i.e., greater conformity), for the original menu compared with randomly generated orders[3]. People tend to buy similar items that are similar in every aspect with previous orders. In terms of actual differences of D-indices between group orders (the original order) and individual orders (random order), physical distance (57.1% smaller in the group decision) and price (54.6% smaller in group decisions) are most critical in decision making. Menu sub-category, on the other hand, does not show a big difference between group decision and individual decisions (33.7% smaller in group decisions).

In sum, the results suggest that customers in group settings chose similar options with other group members in terms of various attribute levels, showing an attribute-level 'group referencing effect'.

4.5. Further analysis: D-index across different attributes

There is a chance that the results of the attribute-level group referencing effect could be inflated by the exact same order from a group (because the same orders are the same on all attributes). That is, the same orders. In order to address this concern, we further analyzed D-index, excluding menu items which consists of the same items (D-index and V-index = 0), to test how much variety contributes to multi-attribute heterogeneity. If the alternative explanation is a key underlying mechanism, both V-index and D-index show similar patterns. In contrast, if the group referencing effect is the dominating mechanism, the D-index should show relatively greater conformity seeking pattern compared to the V-index.

Out of a total of 340 receipts, 111 included items that were exactly the same as other items on the same receipt. Excluding these 111 receipts, we have 229 with at least two unique items in the order. The analyses reveal unique results. Due to the characteristics of the order combination (i.e., with different items in each group order), V-index shows very similar results to those found by Ariely and Levav (2000). Actual orders seem to be more diverse than the random orders (0.8667 vs. 0.7662; t = 3.473, p-value = 0.001; see Fig. 4), showing a group variety seeking pattern. However, D-index

[3] All paired differences are statistically significant at significance level of 0.01.

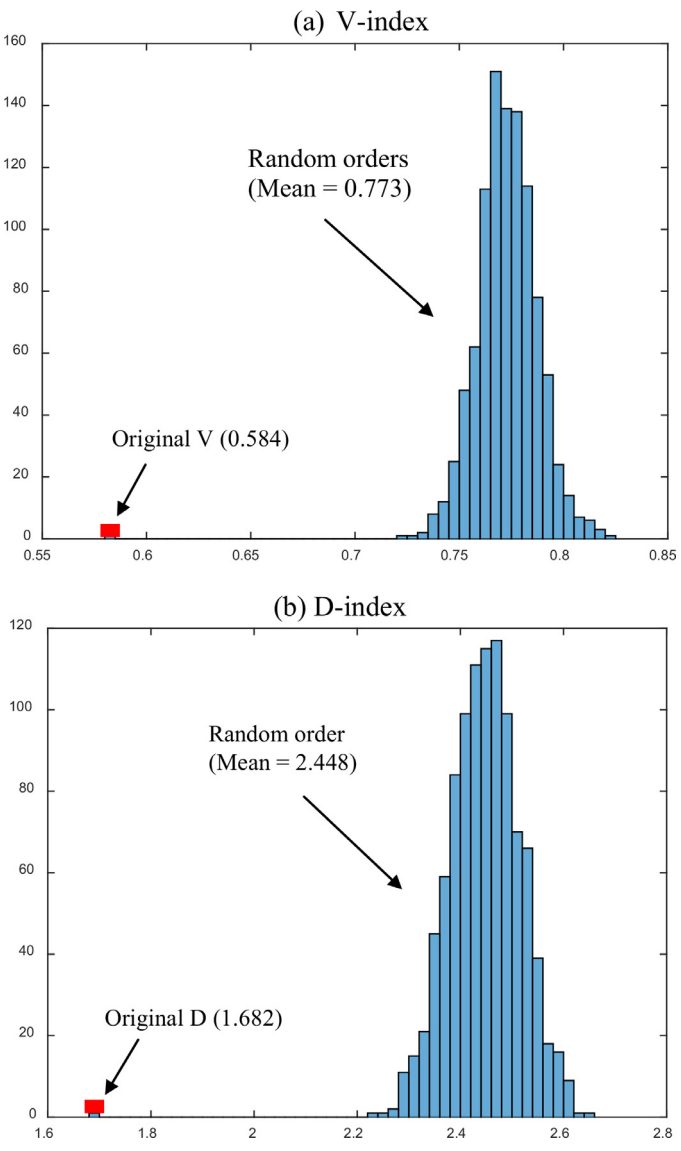

Fig. 3. V-index and D-index for randomly generated menu orders. (a) V-index. (b) D-index.

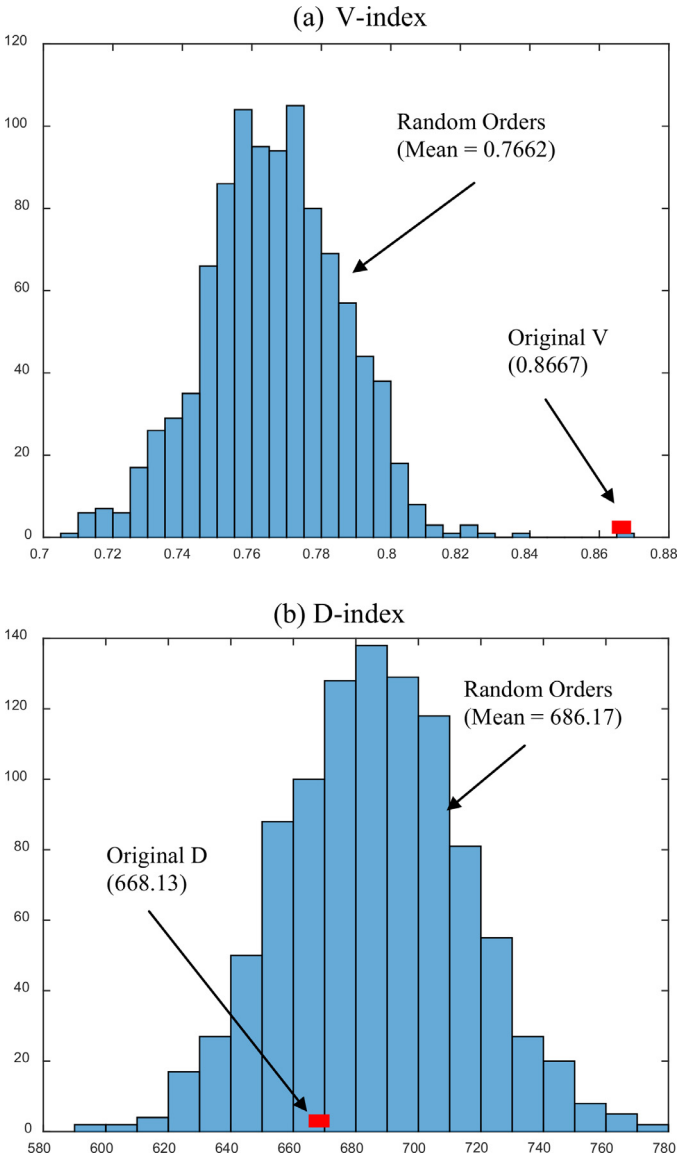

Fig. 4. V-index and D-index in menus having at least two unique items only. (a) V-index. (b) D-index.

Table 3
Descriptive stats and paired-sample T-test for V-index and D-index.

(a) V-index

Group Size	Original	Random Orders				Paired Sample T-test			
	V-index	Mean V	SD V	Min V	Max V	Mean Diff	Std. Err.	T-value	P value
2	0.623	0.804	0.022	0.736	0.879	−0.180	0.031	−5.729	.000
3	0.561	0.745	0.040	0.602	0.867	−0.184	0.559	−3.288	.001
4	0.440	0.698	0.049	0.548	0.845	−0.258	0.640	−4.028	.000
5+	0.401	0.612	0.037	0.495	0.745	−0.211	0.409	−5.164	.000

(b) D-index.

Group Size	Original	Random Orders				Paired Sample T-test			
	D-index	Mean D	SD D	Min D	Max D	Mean Diff	Std. err.	T-value	P value
2	1.657	2.449	0.106	2.080	2.770	−0.792	0.113	−6.997	.000
3	1.840	2.448	0.184	1.865	2.960	−0.607	0.211	−2.875	.005
4	1.659	2.439	0.206	1.629	3.146	−0.779	0.269	−2.892	.006
5+	1.629	2.453	0.155	2.018	2.898	−0.824	0.196	−4.212	.000

Table 4
D-index for each attribute and changes between decision contexts.

Attribute	Original Order	Random Orders				Ratio of Difference*,a
	D-index	Mean D	Std. Dev. D	Min D	Max D	
(Raw) Price	424.54	656.54	22.33	596.36	725.07	−54.6%
Calories	112.08	163.57	5.53	145.66	181.17	−45.9%
Sub-category	0.495	0.662	0.022	0.599	0.724	−33.7%
Iced or not	0.436	0.626	0.025	0.531	0.694	−43.6%
Menu location	0.808	1.270	0.052	1.102	1.421	−57.1%

* Ratio of difference = [(D-index for original − D-index for random) / D-index for original] × 100.
[a] All differences are significant at $\alpha = 0.01$ level.

Table 5
V-index and D-index for menus with two or more unique items only.

	V-index	D-index	Standard D-index	D-index For Each Attribute				
				Location	Drink	Iced	Price	Calorie
Original	0.867	668.128	2.497	1.200	0.736	0.647	630.325	166.414
Random orders	0.766	686.170	2.448	1.269	0.662	0.626	656.123	163.520
Mean difference	0.100	−18.042	0.049	−0.069	0.073	0.021	−25.798	2.894
T-stat	3.473	−0.445	0.332	−0.558	1.239	0.356	−0.571	0.263
P-value	0.001	0.657	0.740	0.577	0.216	0.722	0.569	0.792

of actual orders (D = 668.128) is smaller than that of random orders (D = 686.17), but it is not significantly different (t = −0.445, p-value = 0.657). The pattern also holds for every attribute (see Table 5).

In sum, the further analysis reported in this section suggests that even though customers ordered the different menu options with other group members in a group setting, they might order similar options with other members at attribute level. These results again confirmed the attribute-level group referencing effect.

5. General discussion

This paper has several theoretical and practical implications. First, our theorizing and empirical findings are critically different from the previous literature (Ariely and Levav, 2000; Quester and Steyer, 2009). The previous literature mainly focused on a dichotomous approach to ordering (e.g., the exactly same or different), whereas our study focuses on continuum, multi-level approach with assessing conformity at attribute level. Therefore, the results of our studies could extend our understanding regarding group decision-making by suggesting the new concept of the 'group referencing effect.'

Second, in contrast to Ariely and Levav (2000), we found group uniformity in menu ordering and a group referencing effect in the various attribute levels including attribute-related to the menu (e.g., price, calorie) as well as the physical display of menu (e.g., item locations). There are many possible reasons for this inconsistency. First, cultural difference could influence the results. Compared to the previous studies, which were conducted in Western countries (e.g., US or France), this study was conducted in the Korea, an Eastern country. Previous literature has suggested that Eastern people put more weight on group harmony, whereas Western people put more weight on individual preference (Markus and Kitayama, 1991). The emphasis on group harmony could drive customers to order the same type of drink. Put differently, ordering the same items in a public setting could signal group harmony among group members. Second, because making multiple number of different drinks is difficult, the customers could have been acting out of consideration for the service employee and order the same or similar menu item in order to reduce the burden on the service person. Third, Ariely and Levav (2000) used a relatively small number of consideration sets (choice of 4 beers/wines) of unfamiliar food menu (Chinese food for American customers). On the other hand, most customers in this study were exposed to relatively large consideration set because the café menu was well known to them. In other words, customers might face choice overload (Iyengar and Lepper, 2000). In this situation, they might use other group members' order as the reference to order, resulting in group uniformity. Future study needs to investigate this possibility.

The third theoretical implication is related to our finding of the group referencing effect found at multiple attribute levels. For example, we found a group referencing effect in price or calorie. This pattern is related to recent research which suggested that people might match their choice in order to make another person feel better or to avoid offending another person (i.e., Lee, Yi, & Kim, 2017; Liu et al., 2013). In addition, the impact of physical location was also an important factor for menu choice. This suggested that the search cost is also important for the menu selection.

In addition, we introduced a Euclidean distance based D-index to measure for variety of individual items within an order made by a group of people. This measure takes into account different levels of multiple attributes of items. Therefore, it provides a better understanding of how close (or different) every item in an order is than the V-index does, suggested by Ariely and Levav (2000). With attribute level analyses, we were able to see what attributes people seek in their choices compared to others' choices in a group. V-index treats two items which have very similar attribute levels as two unique items, resulting in a very large index, whereas D-index is small if items have similar attribute levels. Thus, V-index suggests variety regardless of attributes if items are not exactly same. However D-index gets large when individuals seek counterbalancing attributes in their group menu and small when equibalancing attributes are sought.

Finally, the paper offers a few practical implications. Obviously, knowing that customers ordering in a group tend to order options similar to the ones who ordered first, managers have even greater incentives to place resources to convince the customer ordering first to order an option that gives the firm the most profit. In addition, marketers may attempt to make the first-ordered option more salient (e.g., by saying it loud) to other customers in the group to make it easier for the other customers in the group to conform. Furthermore, marketers in a retail setting could provide their customers incentives to order the similar options in order to reduce their workload, since the practice will not be against the customers' preference.

In sum, this research suggested the group referencing effect based on real marketplace behavior. We found that consumers in a group setting tend to choose options with similar attributes to orders by other group members, thus showing the group uniformity effect.

This research adds to the important streams of research on eating, social influence, and conforming behavior (Kongsompong et al., 2009; Smith and Paladino, 2010; Tombs and McColl-Kennedy, 2010).

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