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DISCOVERING THE MAJORITY FALLACY

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ABSTRACT

The fallacy game, designed to allow students to discover the majority fallacy, a key principle of product positioning strategy, is described. Results suggesting that the teaching objective was reached are presented.

INTRODUCTION

The fallacy game is a simple competitive business simulation designed to dramatically demonstrate an important element of product positioning--the majority fallacy. The game is intended to illustrate the principle so clearly that students can "discover" the concept without having it suggested to them in any other way than through the experience of the game.

This clarity is achieved through narrowness of focus; while many simulation games ask students to make choices in several decision categories, thus stressing the interrelatedness of decisions, the fallacy game asks for a decision in one category--product position--thus underlining the principles of this single decision. Students also told the exact model by which the criterion variable of the game--market share--is determined. that their attention is concentrated on competition analysis. The discovery of the majority fallacy 'sets the stage for, and complements, traditional lecture and discussion of product strategy. At the games termination, students read and discuss Kuehn and Jay's [1] seminal article on product positioning (which suggested this game) in terms of the play of the game.

THE MAJORITY FALLACY

The majority fallacy concerns where a new brand entry into a market should be positioned with respect to physical or perceptual product attributes. For example, a soft drink producer launching a new beverage must Select levels of carbonization, sweetness, and other attributes. After conducting some initial product testing, perhaps paired comparisons of, say, three product variants differing in level of sweetness, it might be determined that most consumers find level A to be too tart, level C too sweet, and level B about right. The temptation in such a case might be to select the modal preference level of the attribute, in this case level B. This could be a major strategic blunder--the majority fallacy.

When several established brands already occupy the modal preference level for the attribute, the most the newcomer can expect is to share the market. If four existing brands occupied the preferred position, the new entry might hope for a 20% share of the market, if the difficulties of being the lagged entry can be overcome. The point to be made in teaching product strategy is that a much better product position may be above or below the modal preference level. This allows one to sits between existing competition and satisfy many consumers not having the modal preference.

To make this point as obvious as possible through a classroom game, only one decision variable is introduced--where to position a new brand along three attribute dimensions.

THE GAME

The game is begun by showing competitors a consumer preference map. For each of the three attributes of the product category the map shows how many consumers occupy each of six possible levels. There are thus 63 = 216 possible product positions. This map is shown in Figure 1. The distribution of consumers is clearly not random or uniform; there are three preference peaks (one major and two minor) and the distribution of customers slopes away smoothly from these peaks.

For the first round of the game, each of the teams (up to six) may select any position they wish. In subsequent rounds each team may move as many as four locations (city block distance) from their previous position. This restriction is to make any major position change multistage, preventing erratic behavior on the part of any team.

After each round students receive a market share map which shows which teams capture what locations on the consumer preference map. Figure 1 illustrates such a map. The simplicity of the game makes it easy to administer. Each team's decision is reported as three numbers, and the administrator's decision card requires only number of teams, number of copies, and each team's product position. Since there are no cumulative or lagged variables, each round of play stands by itself. The computer code for the game is quite short and is shown in the Appendix. When there are no teams, only the consumer preference map is output.

STUDENT REACTION

So far, the game has been used with only one class:
graduate students with no prior business education taking a leveling course in marketing principles. Six teams with three of four members each played six rounds. The students were given output on one day, then the next week each turned in a written thought, including a description of the market as he saw it and a decision for the next step. These individual decisions are not necessarily used in the next round--that is a decision made in class (after all individual thoughts have been written.)

To promote the discovery of the majority fallacy, the game was introduced with no accompanying lecture on strategy. To determine the progress of the class toward this teaching objective, the weekly papers were analyzed for evidence of this occurrence. The results have been most gratifying. Table 1 illustrates some comments by students prior to the first two moves. By the third move, almost all students were talking about the foolishness of competing for large segments in the face of much competition.

FIGURE 1
GAME OUTPUT

CONSUMER PREFERENCE MAP
(ATT1 PLANE; ATT2 ROW; ATT3 COLUMN)

SAMPLE OUTPUT

6	13	25	42	57	64	11	19	28	40	52	57	18	27	31	33	38	41
8	18	35	58	80	89	15	26	39	56	72	80	25	38	43	47	54	57
8	20	39	65	89	100	15	27	42	61	81	89	26	40	46	51	60	64
7	17	34	58	80	89	12	23	37	54	72	80	25	38	43	47	54	57
5	12	24	41	57	64	10	18	27	39	52	57	23	34	36	36	39	41
3	7	14	23	33	36	6	11	16	23	30	33	16	23	23	22	23	23
22	30	29	25	23	24	17	23	20	14	11	11	8	11	9	6	4	4
32	44	42	35	33	33	26	35	31	21	17	15	14	18	15	10	6	5
37	51	48	40	37	37	35	47	41	27	19	17	22	29	24	14	8	6
43	58	55	40	34	33	48	63	53	32	20	16	35	45	37	20	9	6
44	59	51	35	26	24	54	71	58	32	17	12	41	53	42	22	9	4
32	43	36	23	16	14	41	53	43	25	11	7	31	41	32	16	6	3

MARKET SHARE MAP

A	AC	AC	AC	AC	AC	A	A	AC	AC	AC	AC	A	A	A	AC	AC	AC
A	AC	AC	AC	AC	AC	A	A	AC	AC	AC	AC	A	A	A	AC	AC	AC
A	AD	D	D	D	D	A	A	AD	D	D	D	A	A	A	AD	D	D
A	AD	D	D	D	D	A	A	AD	D	D	D	A	A	A	AD	D	D
A	AD	D	D	D	D	A	A	AD	D	D	D	AE	AE	AE	ADE	D	D
A	AD	D	D	D	D	AE	AE	ADE	D	D	D	E	E	E	E	D	D
A	A	A	A	AC	AC	A	A	A	A	A	AC	A	A	A	A	A	A
A	A	A	A	AC	AC	A	A	A	A	A	AC	AE	AE	AE	AE	AE	AE
A	A	A	A	AD	D	AE	AE	AE	AE	AE	ADE	E	E	E	E	E	E
AE	AE	AE	AF	ADE	D	F	E	E	E	E	F	E	E	E	E	E	E
E	E	E	E	E	D	F	E	E	E	E	F	E	F	E	E	E	F
E	E	F	E	E	DE	F	E	E	E	E	E	E	E	E	E	E	E

TEAM	POSITION	SHR
A	2 2 5	9.1
B	2 4 5	24.6
C	2 2 5	9.1
D	5 5 5	50.0
E	4 5	27.3

TABLE 1
ILLUSTRATIONS OF INSIGHTS OBTAINED

Student	First Move	Second Move
1	"I'm going to guess that the other teams will move, leaving us with a big market share."	"While the market is smaller, the two teams can share it and, for the most part come up with bigger shares than the four teams competing for the largest market."
2	"Having control of a low preference area, I do not anticipate many of the competitors moving into our market."	"The main problem now is that there are too many competitors in the section of the market we are currently in."
3	"I believe we are basically located in a good segment of the market and should not modify our coordinate position greatly."	"The right bottom quadrant has been largely neglected by the other teams, so our team will try to cover this segment of the market."
4	"We chose to move there simply because the numbers were greatest there, indicating the strongest demand."	"Three teams are now fighting for the same market. A good ideal point now lies untapped in the vicinity of..."
5	"The majority of distribution is centered around our position thus to move would be a definite loss."	"The trend is for teams to migrate around a big cluster. We should remove ourselves from this and remain in an outer edge to capture share from below."
6	"There is little motivation for anyone to try to get under us because the market gets progressively smaller."	"There is still no one below us, and consumer concentration is not high enough to motivate a move from above."

On the third move, one team positioned itself in the least dense area and captured a large market share, demonstrating exactly what we had intended. This led to lively and meaningful classroom discussion.

Prior to the fifth move, students were instructed to read Kuehn and Day's article [1] and to write a report relating the game to the article and to the general topic of segmentation. The results were more than satisfactory. All students recognized that the article could have been written about their recent experiences.

Grades were assigned on the basis of the written input. Students were informed that the quality and depth of their individual written decisions were the sole basis *for* their grade in this game. This worked very well. Not only did it insure that all students had studied the situation before making a group decision, but it also supplied us with good ongoing insight into the learning process.

It took three product position analyses beyond the initial decision before every member of the class had demonstrated an understanding of the concept. The stopping point for the game was not announced since many students gave evidence of a doomsday phenomenon." That is, their papers contained comments like, "If this were going to be the last move, I'd move to..," This suggested that they were willing to take great risks if the world were ending tomorrow.

The play of the game resulted in many beneficial side effects. For example, questions were raised about the stability of market segments, definitions of preferences, the relation between perceptions and choice, and the ability of advertisers to influence beliefs and perception. Although originally designed for use in that portion of a course preceding 'product Strategy," the game is equally useful for introducing the concepts of "segmentation, "search," or consumer behavior."

REFERENCES

1 Kuehn, Alfred A. and Ralph L. Day, Strategy of Product Quality, Harvard Business Review, Vol. 40, No. 6, 1962, pp. 100-110.

APPENDIX
FORTRAN IV CODE FOR THE FALLACY GAME

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C       PROGRAM FALLACY: A GAME TO ILLUSTRATE THE MAJORITY FALLACY
C
        DIMENSION MAP(6,6,6),RMAP(6,6,6),M2(216),R2(216),IT(216,3),
       1 ITEAM(3,6),N(6),SHR(6),C1(2,3),C2(3,3),LET(8),MSG(10)
        EQUIVALENCE (MAP(1,1,1),RMAP(1,1,1),M2(1),R2(1))
        DATA C1/1.,4.,  2.,4.,  3.,9./,C2/2.,4.,2., 2.,5.,5., 6.,1.,3./
C       EACH PREFERENCE CENTER'S LOCATION (C2 ABOVE) IS BY COLUMN-PLANE-ROW
        DATA LET/1HA,1HB,1HC,1HD,1HE,1HF,1H+,1H /
C
C       GENERATE CONSUMER DISTRIBUTION MAP USING THE 3 PREFERENCE
C       CENTERS (C2) AND THEIR FUNCTION PARAMETERS (C1).
        FMAX=0.
        DO 20 I = 1,6
        DO 20 J = 1,6
        DO 20 K = 1,6
        RMAP(I,J,K)=0.
        DO 10 L = 1,3
        DIS = (I-C2(1,L))**2 + (J-C2(2,L))**2 + (K-C2(3,L))**2
   10   RMAP(I,J,K)=RMAP(I,J,K) + C1(1,L)*2.718**(-DIS/C1(2,L))
   20   FMAX = AMAX1(FMAX,RMAP(I,J,K))
        DO 30 I = 1,216
   30   M2(I)=R2(I)/FMAX*100.
C
C       READ IN TEAMS, COPIES, TEAM POSITIONS AND MESSAGE TO BE PRINTED
   35   READ(5,40,END=170) NTEAM,NCOP,(ITEAM(2,L),ITEAM(3,L),ITEAM(1,L),
       1 L=1,6),MSG
   40   FORMAT(I1,I3,6(3X,3I1),10A4)
        IF(NTEAM.EQ.0) GO TO 110
C
C       ALLOCATE CONSUMERS TO TEAMS
        DO 45 I = 1,6
   45   SHR(I)=0.
        TOT = 0
        DO 90 I = 1,6
        DO 90 J = 1,6
        DO 90 K = 1,6
        LOC = 1 +(J-1)*6 + (K-1)*36
        FMIN = 100
        KT = 1
        DO 70 L = 1,NTEAM
        DIS = (I-ITEAM(1,L))**2 + (J-ITEAM(2,L))**2 + (K-ITEAM(3,L))**2
        IF(DIS-FMIN)50,60,70
   50   KT = 0
        FMIN = DIS
   60   KT = KT + 1
        N(KT)=L
   70   CONTINUE
        TOT = TOT + M2(LOC)
        Q = FLOAT(M2(LOC))/KT
        IT(LOC,2) = LET(8)
        IT(LOC,3) = LET(8)
        DO 80 L = 1,KT
        SHR(N(L)) = SHR(N(L)) + Q
   80   IT(LOC,MIN0(3,L))=LET(N(L))
        IF(KT.GT.3) IT(LOC,3)=LET(7)
   90   CONTINUE
        DO 100 I = 1,NTEAM
  100   SHR(I)=SHR(I)/TOT*100
C
C       PRINT IT OUT
  110   DO 160 NOP = 1,NCOP
        WRITE(6,120) MSG
  120   FORMAT(1H1,///,50X,'CONSUMER PREFERENCE MAP',/
       1 45X,'(ATT1 PLANE; ATT2 ROW; ATT3 COLUMN)',///,45X,10A4,5(/))
        DO 124 I = 1,216,36
        J = I + 17
  124   WRITE(6,130) (M2(K),K=I,J)
        WRITE(6,135)
        DO 126 I = 19,216,36
        J = I + 17
  126   WRITE(6,130) (M2(K),K=I,J)
  130   FORMAT(//3(10X,6I4))
  135   FORMAT(6(/))
        IF(NTEAM.EQ.0) GO TO 160
        WRITE(6,140)
  140   FORMAT(1H1,///,50X,'MARKET SHARE MAP'///)
        DO 144 I = 1,216,36
        J = I + 17
  144   WRITE(6,145) ((IT(K,L),L=1,3),K=I,J)
  145   FORMAT(//,3(10X,6(2A1,A2)))
        WRITE(6,135)
        DO 146 I = 19,216,36
        J = I + 17
  146   WRITE(6,145) ((IT(K,L),L=1,3),K=I,J)
        WRITE(6,150)
  150   FORMAT(///,10X,'TEAM   POSITION      SHR',//)
        WRITE(6,155) (LET(L),ITEAM(2,L),ITEAM(3,L),ITEAM(1,L),SHR(L),L=1,
       1 NTEAM)
  155   FORMAT(11X,A1,I9,2I1,F10.1)
  160   CONTINUE
        GO TO 35
  170   STOP
        END
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