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What do you plan to buy in the store today?"

Impulse buying in grocery stores: The challenge for market research

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1. Abstract

The paper presents results from a dual study based on pre- and post interviews with 600 grocery shoppers who shopped both virtually and in real life in the same store. The shoppers were asked to identify products that they had just purchased on impulse in a post-shopping interview. There is a strong impulse effect in a grocery store. The shopping basket of customers that used a shopping list had the same share of impulse product that the customers without a shopping list. This is a surprising and interesting finding. Moreover, the study shows that the customers tend to label a product an impulse product when he or she had not planned to buy anything in a particular category.

2. Goals.

Before the introduction we highlight the following questions:

1. To what extent is it possible to predict impulse purchasing in a grocery store?
2. Can we predict "real life" grocery shopping in a VR store?
3. Is it possible to develop VR shops where you can test new products in a realistic and lifelike manner?
4. Are there any impulse shopping differences between those who plan their shopping and those who don't?
5. Which grocery shopping categories have the greatest impulse potential?

3. Introduction

From a managers point of view market information should be relevant, of high quality and available at a short notice. Before launching new products or new packaging, surveys and/or

lab-testing is often used. Unless test-stores (physical stores) or real stores are used, the context for the tests or surveys is to some extent artificial. Quite often traditional surveys such as pre-shopping questionnaires or post-shopping questionnaires are used in order to collect information with regards to for instance preferences and shopping intention. However, it is well known that impulse buying is important for FMCG – in a grocery store unplanned shopping happens “all the time.” This paper is a study of impulse purchasing in grocery shopping. Moreover, a new market research tool is presented as an alternative to the traditional surveys.

New technology creates new opportunities. Today, computer games have become very popular and gaming technology can be used to build a virtual store. “*A game experience in every (computer) application*” (Rosenbloom, 2003) is the title of a special issue of Communication of the ACM, an influential magazine in computer science. It is well known that kids, young adults and even some adults are spending a lot of time playing games. (Rosenbloom, 2003, p.31) There are a number of reasons for this. The author in the introductory article documents that (even) game-playing children realize that the driving force in these immersive environments is the users’ experience. “*Computer games are engaging because they provide increasingly realistic and lifelike 3D visual environments, thus driving demand for home 3D entertainment.*” (Rosenbloom, 2003: 30)

In the paper by Tjøstheim & Saether-Larsen (2005), the virtual store developed by the Norwegian Computing Center, is described. One of the most important features of this new tool is its ability to replicate a shopping environment in a realistic and lifelike manner. Pictures from the physical store are used in to make (or replicate) the VR store.

Figure 1 a - the VR store based on computer gaming technology



Figure 1b – the VR store

The VR store is a market research tool. The tool can for instance be used to test new products, to study shopping baskets, and “hot spots” in the store (figure 2).

Figure 2 – a path tracker tool

Studies on impulse purchasing

In a recent article by Art & Garland (2004) about list and non-list usage the authors claim that more planning occur among all grocery shoppers than might be expected; *“The study reveals that some grocery shoppers, regardless of the presence or absence of a written shopping list, have a flexible approach to grocery shopping that is part of their overall shopping script.”* In our study what is on the shopping list is one part of what the customer has planned to buy, but it also include what the shopper has memorised. In this paper we do not discuss how “impulse purchasing” can (or should) be defined theoretically. There is a body of literature on this topic – see for instance Piron (1991). In our study (the post shopping survey) we let the customer decide which products in the shopping basket that he or she did not plan to buy in a post-shopping interview. In the next section we describe the methodology that we used to study shopping behaviour in a VR grocery store vs. a physical grocery store. In particular the study was designed to expose impulse purchasing in grocery stores.

4. Methodology

4a. Virtual shopping

The two VR stores named Top-shelf, was developed by using computer game technology, a first-person shooter-style game. The two stores were presented on a PC and a 3-D like feeling or experience was created. Photos from the two stores were taken with a digital camera and used in order to replicate the two stores in lifelike manner. The two stores belonged to Coop Norge AS group, and the *Coop Prix* brand. They had approximately the same turnover and number of products – approximately 2500 unique products. At the entrance of the two stores, customers were intercepted and invited to shop on the PC before shopping in the physical grocery store.

When recruiting respondents the interviewers explained that the VR store, the store on the PC is like an Internet grocery store. Moreover, they were asked to give feedback, to give their opinion of the VR store. The purpose of this was to avoid a focus on the comparison of the behaviour (choices) on the computer with the behaviour in the physical store. On the computer the respondents could choose among all the products in the beverage category in addition to the most common other products in the store, 450 all in all. The respondents were given the task “please choose products in the store on the screen (PC) in front of you and put them in the virtual shopping basket and try to think and behave like you will do when you shop in the physical/real grocery store in a few minutes. “

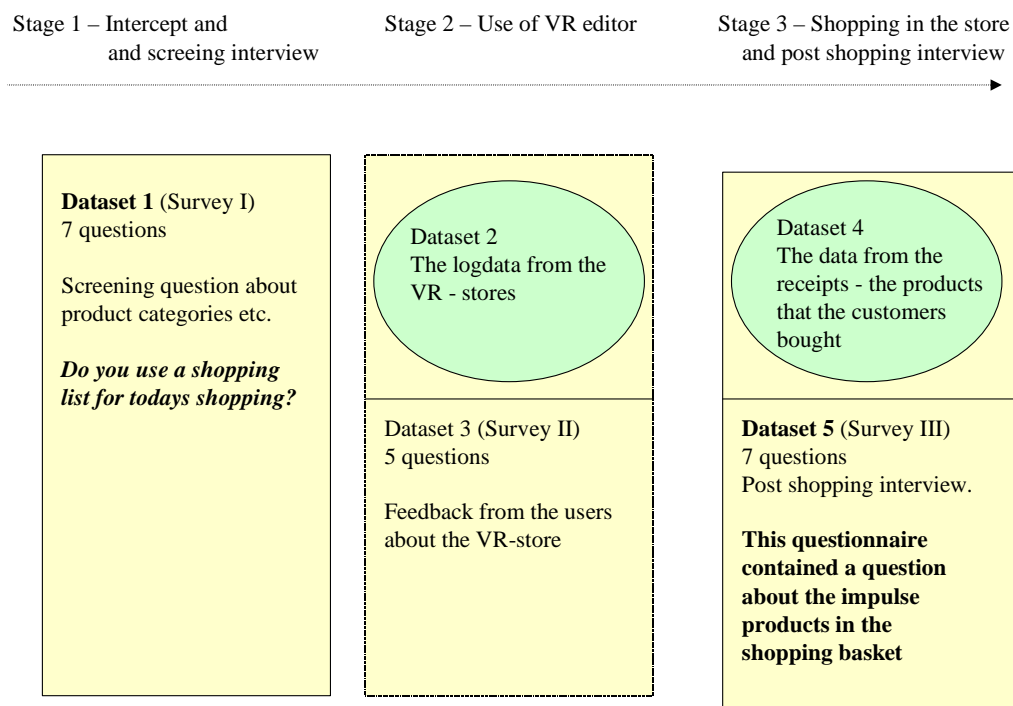
All in all 603 shoppers participated in the study during a four-week period the summer 2003.

4b. “Real life” shopping

After the customer completed the VR shopping, s/he did the grocery shopping and a post-shopping interview. As an incentive a shopping/gift card with a value approx 20 euros was used. The 603 respondents were asked to the receipted to the interviewer. Then they were asked to point at all products that they had not planned to buy.

The next figure presents the different surveys used. For the paper “How to validate a new MR tool” results from datasets 2 and 4 was used. In this paper results from the dataset 1 and 5 are compared in order to show that impulse purchasing is very common, and that it is difficult to predict.

Figure 3 - Overview of the datasets and surveys



5. Findings

In a market share test, the shopping baskets of the VR stores were compared to the shopping baskets from the physical store, were analysed. This test was performed 36 times based on the statistical criteria for the Monte Carlo simulations. In 23 of the 36 tests (64%) no significant difference between the market shares were found. For more information with regard to these tests – see Tjøstheim & Saether-Larsen (2005).

We did not expect that the VR store should predict correctly each time. We knew that the VR store, the program, could be improved. For instance, the quality of the pictures was not the best and that a higher picture-resolution makes it easier for the user to see and choose a product from the shelf. Moreover, impulse purchasing implies that a customer make his or her decision there and then (and not outside the store when he or she participate in an interview or a test). In the next section we present how we study impulse purchasing.

5a The surprise – the planners do as much impulse purchasing as other shoppers

It is important to do surveys in a realistic setting or context. For instance, it is better to do surveys with grocery shopper at the entrance of the store, in the store or just after the shopping trip, than in other locations? The respondent is in this first case in what can be called a shopping-modus. However, shoppers are different; some are using shopping-lists while others do not plan what to buy. In this project 603 grocery shoppers were asked; do you plan or use a shopping list (written list, memorised list etc) for today's shopping?

The answers were:

Yes, everything or nearly everything: 38% (Segment 1)

Yes, to some extent and in addition I buy what comes to my mind when I am in the store, 40% (Segment 2)

No, I do not plan in advance – I buy what comes to my mind in the store, 20% (Segment 3)

Some will argue that we have identified three different segments. And for some purposes this might be true. However, the same shoppers were interviewed after their shopping trip and asked which of the goods in the shopping basket he or she **did not plan** to buy. We expected to find the lowest number, the lowest percentage for the members of segment 1.

Percentage that identified **at least one** product bought on impulse (not planned) for the three segments:

For segment 1: 64% (145)

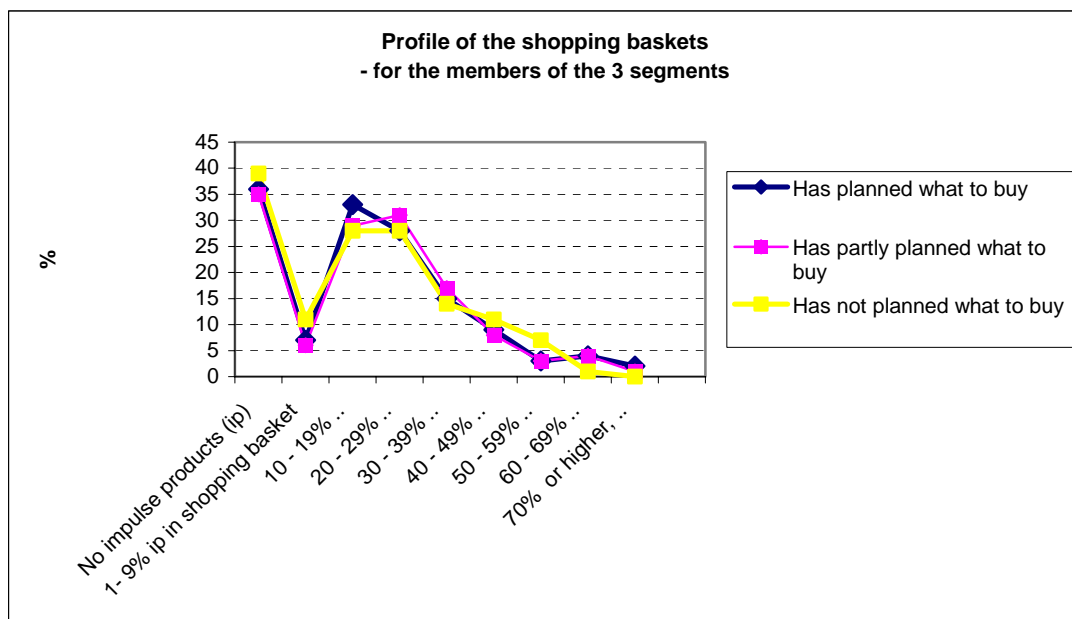
For segment 2: 65% (156)

For segment 3: 61% (83)

This result is quite interesting, there are practically no differences between the three segments. However, the criteria used was; “only one unplanned product.” It is more important to look at the profile (the percentage of impulse goods of total number of goods) of the shopping basket or to look at what kinds of products are “impulse products”?

The share/percentage of impulse goods is the number of unplanned goods divided by the total number of goods in the basket.

Figure 4 – The profile of the shopping baskets



The percentage of impulse products does not drop for those that according to themselves have planned what to buy. It illustrates that is difficult to do surveys about shopping intension such as *what are you going to buy today?* Based on this result it is important to analyse if the content of the shopping basket of these 3 segments are different? The impulse products, to which categories to they typically belong?

5b. The impulse products – in which categories do they belong?

In order to analyse the impulse products the information on each receipts were coded based on a list of the most popular products of this kind of store. The less popular products were not given a unique number, but a number that meant “no name.”

Table Z

	All the respondents	Segment 1 Has planned...	Segment 2 Has partly planned...	Segment 3 Has not planned....
Shopping baskets without impulse products	37% (221)	37% (81)	39% (87)	24% (53)
Shopping baskets with impulse products	63% (383)	38% (145)	40% (156)	21% (82)
	604			

Table z shows that 383 customer had impulse products in their shopping basket according to themselves. In the following the focus is on the shopping baskets of these 383. In the pre-shopping interview the respondents were ask a question containing 15 categories. In order to qualify for the test, the respondent had to answer either “beer, soft drinks or water” since the main purpose was to analyze shopping behavior for the brewery company Ringnes (Tjøstheim & Saether-Larsen, 2005). Hence, the list of categories was a not complete – it was used for the screening purpose. It did, for instance, not contain “chocolate and snacks.”

Table F - To which categories did the impulse product belong?

	Number of shopping baskets with:
Fruit and vegetables	74
Chocolate & snacks	67
A diary product	55
Spread	42
Bread & bakery products	33
Soft drinks	28
Co smetics & soap	27
A dinner product	25
Frozen food	22
Egg	17
Tobacco	14
Beer	9
Washing powder etc	5
Other (but on the list with product names)	79
The impulse product(s) was not among the list of the most common products in the store. The “no name” products.	231

Firstly, the store had about 2500 unique products. The list used by the interviewers contained approximately 900 unique products. As a result the interviewers had the use the “no name” when coding the receipts. However, it is interesting to see that among the impulse products the “no name” products (the 231) are by far the most common impulse category. On the other hand, if we assume that customers use the shelf, what they see when they are in the store, to choose a product, it is not that surprising that a less popular product is perceived as an impulse product by many customers.

Secondly, table F shows that products in the “fruit and vegetables” category are on top of the list followed by chocolate and snacks. It is likely that products in the fruit and vegetable

category are perceived as healthy products and chocolate and snacks as less healthy products. But why is the impulse effect strong for fruit and vegetables? In this study we document that there is an impulse effect in this category, but we have not tried to answer why it is particularly strong in this category. However, Sainsbury has seen the impulse effect in this category according to a news story at www.freshinfo.com June 2004;

Sainsbury's is set to launch a range of fresh fruit lines specifically targeted at the fast-expanding snacking market, ...named Fruit Snacks..... The range will initially be available in Sainsbury's Local and Central formats, and merchandised in the high impulse area of the store. Sainsbury's Fruit Snacks buyer Dominique Schulenburg said: "This range capitalises on the opportunity for more impulse purchasing of fruit. Impulse fruit purchases (fruit bought and eaten out of the home) make up a tiny five per cent of the fresh fruit category sales at present and if you compare this to 50 per cent plus for confectionery, clearly the opportunity for these lines is huge."

It also relevant to look into the question; do the shopper chooses more than one impulse product in the category. For instance if a customer buy chocolate and snacks and he or she did not plan to buy something in this category, is it just one extra product in his/her shopping basket or are there several products?

Table G - The categories with impulse products (II)

	Number of shopping baskets with:	One product in the category	More than one products in the category
Fruit and vegetables	74	52	22
Chocolate & snacks	67	53	14
A diary product	55	47	8
Spread	42	37	5
Bread & bakery products	33	28	5
Soft drinks	28	28	-
Cosmetics & soap	27	26	1
A dinner product	25	22	3
Frozen food	22	21	1
Egg	17	17	-
Tobacco	14	13	1
Beer	9	7	2
Washing powder etc	5	5	-
Other (but on the list)	79	71	8
The impulse product(s) was not among the list of the most common products in the store	231	141	90

Table G shows that the majority of the customers only buy one extra impulse product in each category.

In the first questionnaire, the pre-shopping interview at the entrance of the store, the respondents were asked about whether he or she indented to buy products in some of the listed categories. As mentioned, this list did not contain all relevant categories in the store, but some of them. For the categories on this list it is possible to ask the following question "*for the impulse products identified by customer, did the customer plan to buy something in the category (=that the IP belong to) according to the pre-shopping interview, or do the shopper tend to identify products as impulse products if he or she did not plan to buy products in the category at all*"?

Table K

	Number of shopping baskets with:	Customers that did buy an impulse product in this category, but had not planned to buy a product in the category
Fruit and vegetables	74	50 (68%)
A dairy product	55	38 (69%)
Spread	42	29 (69%)
Bread & bakery products	33	17 (52%)
Soft drinks & water	28	21 (75%)
Cosmetics & soap	27	27 (100%)
A dinner product	25	18 (75%)
Frozen food	22	19 (86%)
Tobacco	14	13 (93%)
Beer	9	8 (89%)
Average	329	240 (73%)

It is useful to ask a grocery shopper in a pre-shopping interview what to you plan to buy in the store today? We have shown that impulse buying is very common. Moreover, the results presented in table K indicate that if a shopper had planned to buy products in a category, it is likely that “the impulse products” belong to other categories.

Table L

	Number of shopping baskets with:	Segment 1 Has planned...	Segment 2 Has partly planned...	Segment 3 Has not planned....
Shopping baskets without impulse products in the <u>fruits and vegetables</u> category	74	31 42%	20 27%	23 31%
Shopping baskets with impulse products in the <u>chocolate and snacks</u>	67	29 43%	29 43%	9 13%

The impulse effect among the members of the first segment, the planners, is quite strong. In addition there is a difference between the members of the third segments with regard to the fruit and vegetable category and the snacks category. It seems that the member of this segment are much more reluctant to label chocolate and snacks as impulse purchase compared to fruit and vegetables.

5c. VR store shopping influence

The VR store, according to the respondent, did it influence the shopping in the physical store? In the study, the users of the VR-store were not asked to identify impulse product in their VR-shopping basket. We assumed that just by asking such a question we could influence the behaviour of the shopper. The respondent could ask himself, why do they ask me about impulse products? “What is this project about”? However, in the post-shopping interview (after the respondent had given the receipt), the following question was asked; “Did you buy something in the physical store because you noticed the product in the VR store”? It is possible that some of the respondents already had forgotten what they noticed on the PC. Still,

19% of the respondents gave names of one or more products that they had decided to buy because of the “shopping on the PC.”

6. Conclusions

Is it possible to predict impulse purchasing in a grocery store?

Yes, partly or to be more precise, shopper behaviour can to some extent be replicated.

But to ask in a pre-shopping interview “what are you going to buy today...” is not a recommended method.

Could we predict “real life” grocery shopping in a VR store?

To a certain degree, 2 out of 3 products had no significant brand share difference in the VR store compared to the real life store

Is it possible to develop VR shops where you can test new products in a realistic and lifelike manner?

We believe this can be done, but the new tool that we have used needs to be further developed.

Are there any impulse shopping differences between those who plan their shopping and those who don't?

No, the planners” have as many impulse products in their shopping baskets as the other customers. But also yes if you ask;

Which grocery shopping categories have the greatest impulse potential?

Our result indicates that it is fruit and vegetables.

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