

USING EVALUATION GRID METHODS AND THINK ALOUD METHODS TO IDENTIFY UNDERGRADUATE STUDENTS' IMAGE OF A DESIRABLE BOOKSTORE

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Recently in Japan, while many web bookstores are doing brisk business, many actual bookstores are suffering from depressed book sales and searching for ways to survive the tough economic times. Identifying the model of a desirable bookstore from the point of view of users is one way of helping bookstores to improve their services. In this paper we use two methods, the evaluation grid method (EGM) and the think aloud method (TAM), to identify the factors undergraduate students use to evaluate bookstores. EGM is based on the repertory grid method developed by A. G. Kelly, and modified by Junichiro Sanui. We opted to use both methods because they supplement each other. We collected 179 pictures of bookstores using Google image search, from which we selected 20 pictures using random sampling. We showed these pictures to seven undergraduate students, and had them evaluate the pictures. Using EGM, we collected 63 evaluation items and identified the evaluation structure for bookstores. Using TAM, we identified 14 categories of evaluation. We compared the data we obtained using the two methods, and analyzed the students' image of a desirable bookstore. We concluded that bookstores are evaluated according to factors that can be grouped into three main categories: atmosphere, book collection, and bookstore layout. However, the category that was considered the most important varied from student to student.

1. Introduction

Recently in Japan, web bookstores are doing brisk business, with sales increasing from 7 billion yen in 2000 to 420 billion yen in 2004. On the other hand, many actual bookstores are struggling to survive. The number of bookstores in Japan decreased from 20,939 in 2001 to 17,582 in 2006, and sales dropped from 1,591 billion yen in 2001 to 1,506 billion yen in 2006. In order to survive the tough economic times, some bookstores have tried to improve their shop design, range of books, and service, but most are still struggling to come up with appropriate models.

Some publication distributors have implemented loyalty card systems in order to track users' information behavior. If a bookstore understands its customers' information behavior it can improve its services more effectively. Clarifying users' information behavior is therefore a very important issue for bookstores.

There are many studies dealing with different aspects of bookstores based on an information behavior approach. Hemmester (2006) pointed out that the existence of a big bookstore results in a decrease in the frequency of library use. Dali (2004) researched the behavior of Russian immigrants in Toronto in relation to books in public libraries, bookstores, and their own homes. Liang and Lai (2002) analyzed the design and layout of online bookshops and the behavior of their customers.

There are also many articles about the practice of actual bookstores. However, few attempts have been made to deal with the question of actual bookstore models using an information behavior approach. In this paper we use two methods, the evaluation grid method (EGM) and the think aloud method (TAM), to identify the model of a desirable bookstore as revealed in the behavior of undergraduate students in an experimental situation. This is the first time that EGM and TAM have been applied in the area of bookstore research. We opted to use both methods because they supplement each other. We

collected evaluation data by comparing the elements in the EGM process, and also collected evaluation data by grouping the elements in the TAM process.

This paper is organized as follows. In Section 2 we describe the EGM and TAM characteristic. In Section 3 we explain the procedure we used and the limitations of our research. In Section 4 we set out the results we obtained using the two methods, and in Section 5 we discuss what these results reveal about the factors participants use to evaluate actual bookstores. In Section 6 we make concluding remarks and identify future tasks.

2. Method

2.1 Evaluation Grid Method

2.1.1 Repertory Grid Method

In 1955, U.S. psychologist A. G. Kelly developed the method of factor analysis through interviews. He based the method on “personal constructions theory”. Kelly (1955) argued that “[a] person’s processes are psychologically channelized by the way in which he anticipates events”, and that s/he “anticipates events by construing their replications.” Kelly developed the theory while working in high school and junior high school clinical psychology services. According to Kelly (1955), people have an original system of understanding and judgment, which he called “a personal construct system”; is “a way in which two or more things are alike and thereby different from a third or more things”. Fay and Don (1977) explained that personal construct systems are essentially bipolar, and the construct system is “made up of hierarchically linked sets of bipolar constructs.” Based on this system, people use their own eyes and ears to process information, understand their environment, decide on their actions and predict the results of these actions. Sanui (2000) pointed out that there are three levels in the personal construct theory. At the top level, abstract judgments of value are made: “live a comfortable life versus not live a comfortable life.” At the middle level, sensory understanding is utilized: “open environment versus close environment.” At the lower level, concrete and objective understanding is utilized: “the big window versus the small window.”

2.1.2 Evaluation Grid Method: modified repertory grid method

EGM is a modification of the repertory grid method that was developed by the environmental psychologist Junichiro Sanui. Sanui refined the evaluative aspects of the method so that it could be used to reveal the factors upon which participants base their evaluations and their preference structures through an interview process. In this method, the interviewer does not ask participants direct evaluative questions (e.g. “What are your needs?”), but asks them to make judgments using “comparative elements”, and then asks them questions to throw light on the cognitive structure underlying these judgments.

The comparative elements are prepared by the interviewer in advance, and are used to elicit “original evaluation items” (OEI) and “related evaluation items” (REI). OEI are identified through asking participants to explain why they prefer one comparative element over another, and REI are derived from “laddering,” in which participants are asked questions about their OEI. By clarifying the relationship between their OEI and REI, participants’ evaluation structure can be identified.

There are three steps in EGM:

1. Preparation of the comparative elements
2. Identifying the extradites of the OEI
3. Laddering (derivation of the REI)

In the first step, the comparative elements are gathered. In order to decrease the burden on participants, the number of elements should be restricted to 30 or less. However, to avoid bias, these 30 elements should be selected from a larger pool of elements by sampling or grouping. Pictures are often used as comparative elements.

In the second step, the basic procedure is as follows. The interviewer picks up two elements, presents them to the participant, and asks which s/he prefers. After the participant replies, the interview-

er then asks the reason for his or her choice. The phrase used by the participant to explain the choice forms an OEI. This procedure appears very simple on the surface, but in fact is very complex and time-consuming. An alternative procedure involves the interviewer asking the participant to divide the comparative elements into about five groups before moving on to the basic procedure.

In the third step, the REI are derived through laddering. Hinkle (1965) treats laddering as a procedure for eliciting increasingly superordinate constructs. Sanui (2000) modified this approach, treating laddering as a procedure for eliciting both increasingly superordinate and subordinate constructs. The former procedure is referred to as “ladder-up”, and the latter as “ladder-down”. If the interviewer obtains concrete OEI, s/he identifies superordinate concepts using ladder-up; for example, asking the participant, “You said (the reason phrase) is good; what does ‘good’ mean to you? If the interviewer obtains abstract OEI, s/he identifies subordinate concepts using “ladder-down”; for example, asking the participant, “You said (the reason phrase) is good, what is the precondition?” Sanui (2000) pointed out that the interviewer could end up eliciting misleading answers using this process, so must be careful not to question participants too deeply.

The combined OEI and REI form what is referred to as “direct evaluation data.” This is then analyzed to identify participants’ evaluation structure.

2.2 Think Aloud Method

The think aloud method has its roots in cognitive psychology. It involves participants thinking aloud as they carry out tasks specified by the interviewer, and the interviewer recording what they say. In late nineteenth century psychological studies, a considerable number of studies had been made on participant thinking. The data obtained from the method was criticized as not reflecting the natural situation, but only participants’ explanations or rationalizations. The method thus confronted the difficulties of effectiveness. However, Atkinson and Shifflin (1968) showed in full detail that people have short-term memory, in which thoughts are retained for about 30 seconds, and long-term memory, which accumulates over time. Ericsson and Simon (1984) argued that short-term memory is able to arise without changing a person’s mental situation. The method can therefore be judged to be valid.

There are two advantages to the method. The first is that the method can throw light on people’s cognitive processes and responses. The method can also present the process directly. The second is that the method can also illuminate the process of cognition and decision, and sometimes even access affective processes.

However, the method also has a disadvantage. The method requires that participants understand what is going on and therefore imposes a burden on them. To deal with these problems, we practiced the methods with participants.

In this method, participants are asked to verbalize whatever comes into their mind as they carry out specific tasks, and their speech data is recorded. It is therefore a time-consuming approach. Interviewers should in principle not interpose their own speech, as doing so could result in stereotyped or particular speech from participants. If participants say little, however, interviewers can encourage them to speak. After the experiment the recorded data is transcribed verbatim, and then categorized and analyzed. The transcribed verbatim data is referred to as “protocol data.”

3. Procedure

In preparation for our experiment, we collected pictures using the image search function of the Google search engine. The search terms used were “*syoten* (bookstore)”, “*honya* (bookstore)”, and “*furu-honya* (secondhand bookstore)”, “bookstore”, and “book center”. This brought up 206 pictures, from which we selected 179 that were of an appropriate resolution and size for printing, and which did not include any characters or words (such as caption). We then used random sampling to reduce the final total to 20, in order to reduce the burden on participants.

The experiment was conducted over two days, December 26, 2007 and January 11, 2008. The participants consisted of four undergraduate students (two males and two females) on the first day, and three undergraduate students (two males and one female) on the second day. All participants provided

signed informed consent. Participants were free to discontinue the experiment at any time, but none chose to do so.

The experiment was conducted in three parts. First, participant training was carried out. We showed each participant five pictures of drugstores, and asked him or her to group the pictures into three ranks from most to least attractive while verbalizing his or her thoughts.

Second, we showed each participant the twenty bookstore pictures and asked him or her to group the pictures into five ranks from most to least attractive in terms of his or her image of an ideal bookstore while verbalizing his or her thoughts. If participants remained silent for a long period, we encouraged them to speak. Through this process, we collected both OEI and think aloud data. We also video-recorded the process of grouping.

Finally, laddering was carried out. We selected two pictures of different ranks and asked the participant the reason why s/he ranked the pictures differently, in order to collect REI data. If this caused saturation of the item, we concluded the experiment.

Our research has three limitations. First, we only used pictures for the evaluation. Some of the participants commented that they could not make an overall evaluation of a bookstore using pictures that showed only a limited view of the store. We need to think of ways to provide more comprehensive visual information to participants. Second, all the participants are active users of actual bookshops. Our research will therefore only reflect the evaluations made by undergraduate students who are active bookstore users, not those who are passive users. Third, we had only a limited amount of time to collect think aloud data. Devoting more time to this would allow us to collect data reflecting deeper cognitive layers.

4. Result

4.1 Evaluation Grid Method

We collected 63 OEI and REI items. The main OEI items are shown in Table 1; for example, “I think I fit in here”, “good atmosphere”, “not crowded”, “the shelves are arranged so that it’s easy to find books”, “can see the overall layout of the store”, and so on.

I think I fit in here	good atmosphere	the shelves are arranged so that it’s easy to find books
I may be able to find my favorite books	not crowded	I can look for books at my leisure
the store is spacious	well organized	there may be minor books on my favorite subjects
I can concentrate on looking for books, without distractions	I can relax and enjoy myself	the lighting is good
comfortable	can see the overall layout of the store	I am anxious to go there

Table 1: The main OEI phrases obtained using EGM

We identified the evaluation structure shown in Figure 1 using the laddering approach. Abstract items are shown on the left, and concrete items on the right. The eight items shown in double-lined frames (“I can concentrate on looking for books, without distractions”, “comfortable”, “good atmosphere”, “I can read books at ease”, “I may be able to find my favorite books”, “the aisles are broader than in other bookstores”, “can see the overall layout of the store”, “there may be a wide range of books”) are items that were obtained from multiple participants. This suggests that these items are considered important by undergraduate students when evaluating bookstores. Using the laddering process, we identified the assumptions and effect of these items. The items “quiet shop”, “not crowded” and “the aisles are broader than in other bookstores” are contingent on “I can concentrate on looking for books,

without distractions”. The item “can see the overall layout of the store” affected the items “more spacious than other bookstores” and “the bookshop is easy to move around in”.

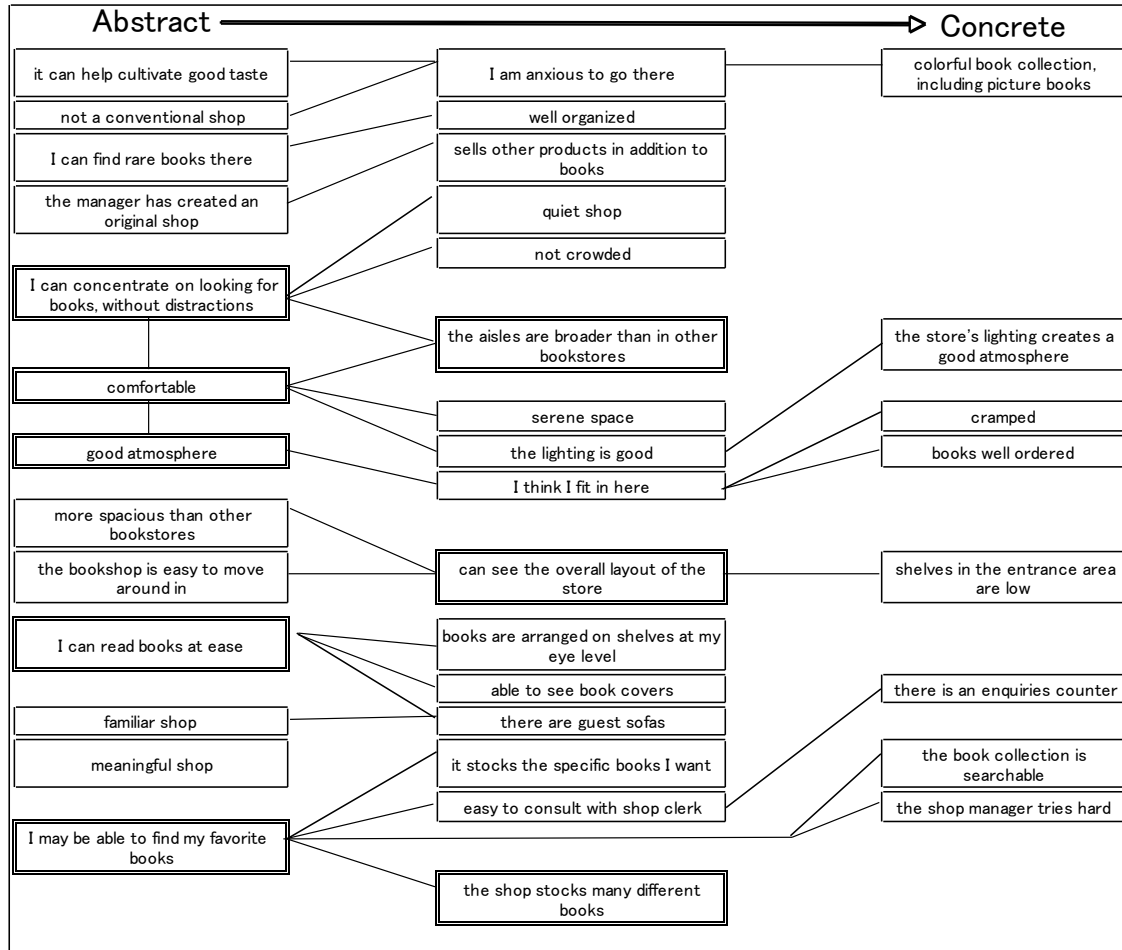


Figure 1: The evaluation structure for bookstores identified using the laddering procedure

4.2 Think Aloud Method

We grouped the think aloud data into 14 categories. These are shown in Table 2, along with the number of verbalizations for each category and the number of participants who made these verbalizations. The 14 categories can be further grouped into three main types: general, relating to the books in the store, and relating to micro elements of the store.

Over half the participants made verbalizations falling into the following categories: “feature of the bookstore”, “crowded displays”, “the collection of books”, “the display of books”, “crowded with people”, “business shares the same space with another shop”, “shop concept” and “broad space”. These categories may represent a common perspective for making evaluations among participants. The categories “crowded displays” and “crowded with people” correlated with a negative evaluation. The categories “feature of the bookstore” used with the words “usual”, “banal”, “in town” correlated with both positive and negative evaluations. The categories “shop concept”, “the collection of books” and “broad space” correlated with a positive evaluation. Other categories were not related positive or negative evaluation..

While many categories were used by many participants, the categories “able to read books at ease” and “bright and colorful” were used by few participants. The two categories used by few participants were related with high ranks.

	Number of verbalizations	Number of participants making the verbalization
General		
feature of the bookstore	14	7
crowded display	12	4
comparison with bookstores in other countries	6	3
able to read books at ease	11	2
accessible shop	2	2
shop caters to children	2	1
Relating to the books in the store		
the collection of books	13	4
the display of books	16	6
Relating to micro elements of the store		
crowded with people	11	6
business shares the same space with another shop	7	4
bright and colorful	8	3
shop concept	10	5
the interior	5	2
broad space	7	4

Table 2: Number of TAM evaluation categories

5. Discussion

The evaluation structure that we identified using EGM contains three main categories of factors that participants consider important in actual bookstores:

1. atmosphere: "I can concentrate on looking for books, without distractions", "comfortable", "good atmosphere", and "I can read books at ease"
2. book collection: "I may be able to find my favorite books" and "the shop stocks many different books"
3. bookstore layout: "the aisles are broader than in other bookstore" and "can see the overall of the store"

The factors contained in the category "atmosphere" are at the abstract level, and indicate participants' expectations or feelings. The factors contained in the category "book collection" are at the abstract and middle levels. These items are about the collection of the shops. Especially, it is important "the shop stocks many different books" can get easily. Therefore, an "organized" collection may be connected with obtaining favorite books easily. The factors contained in the category "bookstore layout" are at the middle levels. The "the aisles are broader than in other bookstores" is connected with "atmosphere" items like "comfortable". Some of the categories were connected to each other. "Atmosphere" was connected to "bookstore layout": "I can concentrate on looking for books, without distractions" and "the aisles are broader than in other bookstores". Some of the "atmosphere" items were connected to "bookstore layout" items: for example, "good atmosphere" was connected to "I think I fit in here" which in turn was connected to "cramped". However, there are limits to the implications we can draw from these relationships, because apart from "I can concentrate on looking for books, without distractions" and "the aisles are broader than in other bookstores", most of the relationships were made by only a single participant.

Using TAM, we identified three categories of evaluation: general, relating to the books in the store, and relating to micro elements of the store. Specifically, the words "broad space" and "the collections of book" corresponded to the phrases "the aisles are broader than in other bookstores", "I can read books at ease" and "there may be a wide range of books". This implies that the range of books and the layout of the store are important elements. Further, the words "able to read books at ease" in the TAM data corresponded to the phrase "comfortable" in the EGM data, and were spoken many times and given a high evaluation by a particular participant. This implies that atmosphere elements like "comfortable" are

important. However, the words “able to read books at ease” and “bright and colorful” were ranked highly by a particular participant, and the number of words was affected by a particular participant who repeated the specific words. So, these words were not highly ranked by all the participants.

There were contradictory elements in the EGM data. Whereas some of the participants said the phrase “the aisles are broader than in other bookstores” is good, others said the phrase “cramped” is good. This conflict occurred in relation to two other phrases.

The categories “feature of the bookstore” and “shop concept” suggest that the originality of a bookstore is an important factor, but we did not address this in our research.

6. Conclusion

In this research, we attempted to identify the model of a desirable bookstore from the point of view of undergraduate students. Our results show that undergraduate students evaluate bookstores according to factors that can be grouped into three main categories: atmosphere, book collection, and bookstore layout, although the weight placed on each category varied from participant to participant, and some participants also stressed the importance of “shop concept.”

We have a little definite information about the relationship between the three categories. However, “atmosphere” and “bookstore layout” were connected with the element “the aisles are broader than in other bookstores”. Therefore a perceived improvement in “bookshop layout” may result in a perceived improvement in “atmosphere”. Further research is needed to throw light on the relationship between the three categories.

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