



The Sound of Music and Word of Mouth: Hearing music and hearing about music

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HPL-2001-97 (R.1)
January 16th, 2003*

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music
consumer
segmentation,
gender
differences,
user studies
methods,
Youden
Squares
Design

Over the last years there have been a number of entities within HP and HP-labs where music related technologies, e.g. MP3, CD writers, entertainment printers, are (or were) of interest. With the proliferation of e-services supporting online and physical shopping for music, it is more and more important to understand how people become aware of the music that they end up owning. Seventy subjects prioritised a list of 13 items pertaining to how they find out about music. We found that “Radio” was an absolute winner and “Internet” ranked at the bottom of the list. A good second was “A friend playing a CD to you”. We were able to segment the subjects along two dimensions. One dimension related to “broad” media, such as radio and TV as well as magazines and newspapers. The second dimension related to specific ways of finding out about music, e.g. going to a concert, a friend playing (specific) music to you. The main cluster (with a predominance of women) was centred around radio, TV, film and video. The segmentation allowed us to place subjects from a parallel in-depth interview study (Brown et al, 2000) in a wider context.

1.Introduction

The success of HP's CD writers and consumers' uptake of the MP3 format sparked off research interest within Hewlett Packard divisions and laboratories into the consumption and publishing of recorded music. To shed some light on this from a user studies perspective we conducted an in-depth interview study with music enthusiasts, MP3 collectors and teenagers around their uses and values of music (Brown et al, 2001).

In parallel, we carried out a quantitative study with a larger sample. The focus was on how people become aware of music that they end up owning. This area has (to our knowledge) not been researched before.

Over the last years, we have witnessed a dramatic growth in online shopping. Not only that, more and more “brick and mortar” shops offer digital services to complement physical shopping. To fully exploit this trend, it might be beneficial to understand how people become aware of music. We judge it as important an area to explore as how (and where) people buy music.

Using the quick and clean Youden Squares Design (Maxwell, 1961), we asked people to prioritise a list of 13 items, which related to how they became aware of the music that they acquired. One of the aims of the study was to investigate if the subjects could be segmented in any relevant manner. And, if so, how would the smaller sample of the music enthusiasts of the aforementioned interview study fit into that segmentation?

2.Method

Seventy volunteers took part, 35 women (mean age 29.97 years) and 35 men (mean age 31.11 years). This sample was not chosen on basis of their enthusiasm for music and as such should be representative for a wider audience of music buying people. We asked the following question to all subjects:

I get a particular piece of music because ---.

The 13 items that we asked subjects to rank were:

1. I read an interview with the artist
2. I read a review of it
3. I saw it advertised
4. I saw an interview with the artist on TV
5. I heard it while watching a film/video
6. I heard it on TV
7. I heard it on the radio
8. I heard it in a concert
9. I came across it while browsing in a music shop
10. Someone I know played it to me on their Hi-Fi
11. I heard it long ago
12. I came across it on the internet
13. Someone recommended it

These items were chosen on basis of some preliminary investigations and discussions within the user studies group. They were originally generated for the purpose of an in-depth interview study on values and usage of music targeting music enthusiasts. The items proved interesting enough to warrant a separate investigation into a wider audience, running in parallel with that interview study.

Using a computerised version of the Youden Squares incomplete block design, the 13 items were presented in 13 blocks of four items to rank at a time. After each session, individuals were given feedback on how they rank ordered the list of 13 items and without exception subjects were in agreement with that particular rank order.

3.Results

3.1.Group List

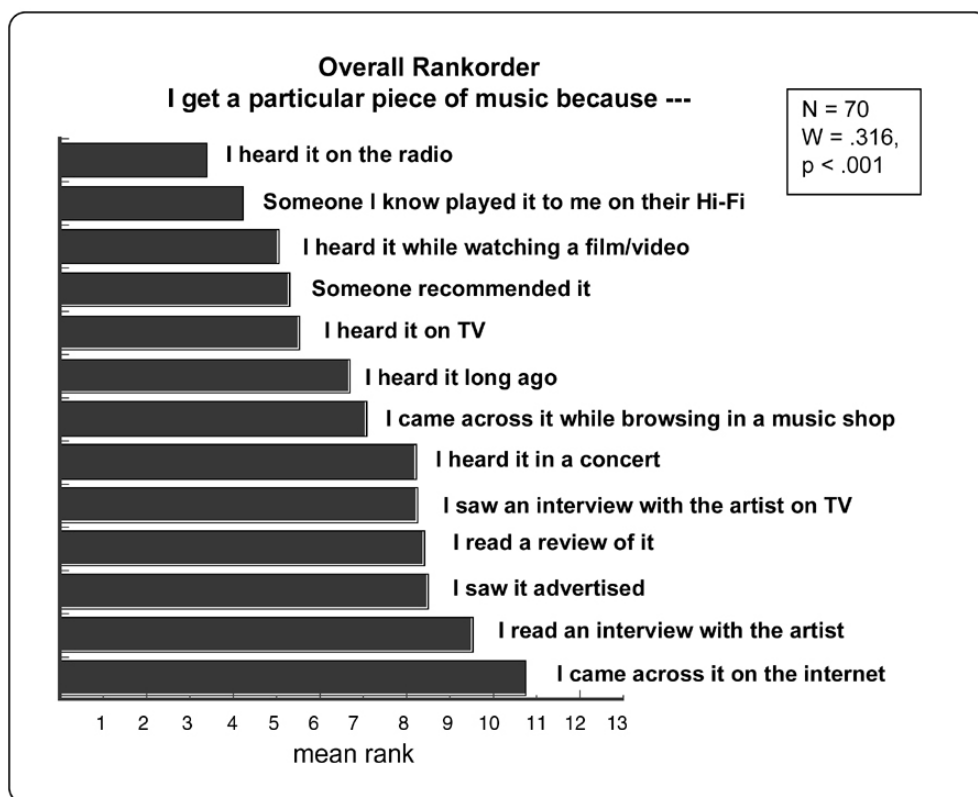


Figure 1: Group List

The group list is shown in figure 1. The overall group concordance was $W = .316$. This statistic cannot be tested for significance but can be transformed into an F ratio (Durbin, 1951), here $F_{(12,826)} = 31.869$, which is highly significant, $p < .001$, indicating a high level of agreement amongst the 70 individuals.

Top of the list was radio (mean rank 3.4), as *the* medium via which people become aware of new music. A very clear second was “Someone playing music to you”, becoming aware in a social setting (mean rank 4.3). Film or video (mean rank 5.1), are also important carriers of new music, closely followed by recommendation (mean rank 5.3) and in the fifth place, TV (mean rank 5.5).

The bottom two items of the list are “I came across it on the Internet” and “I read an interview with the artist”. Above these two is a close group of four items: “I saw it advertised”, “I read a review of it”, “I saw an interview with the artist on TV” and “I heard it in a concert”.

We calculated how each individual correlated with the group list. The correlations ranged from -.214 to .916. Using an arbitrary cut-off point of .55, we identified a large group of 41 (59%) subjects who correlated higher than .55 with the group list. This group of the top 41, covering all ages from 15 to 53 years old, consisted of 26 women (74% of the women) and only 15 men (43% of the men). The group list of these 41 subjects is essentially the same as the total group list but with even stronger group cohesion.

3.2. Item Space

Applying a Multi Dimensional Scaling (MDS) technique on the item inter correlation matrix (13 * 13), we were able to plot the items in a two dimensional space (Figure 2). Interpreting and naming axes of MDS plots requires a more in-depth inspection and, inevitably, speculation.

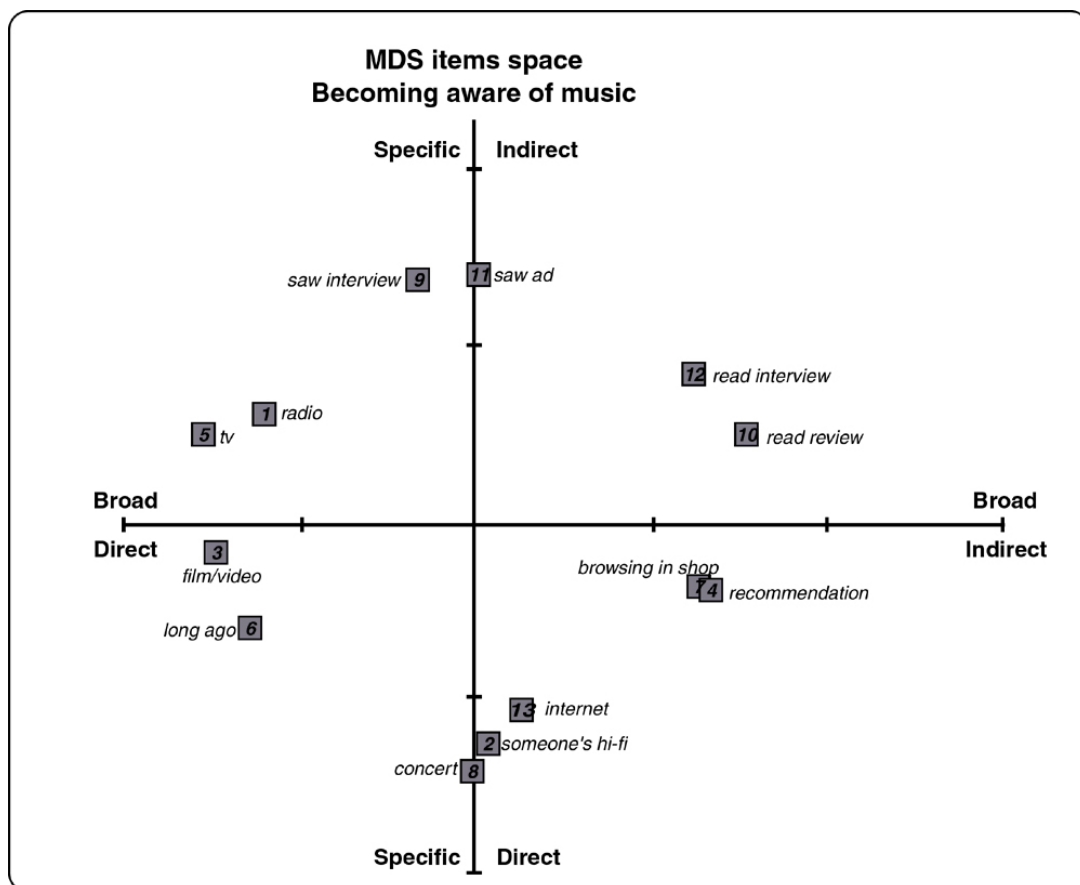


Figure 2: item space.

The grey boxes signify the items and its position in the group list, e.g. “I heard it long ago”, is shown in the bottom left quadrant as a grey box with the label “long ago” and the number “6”, referring to its position in the group list (figure 1). On the left hand side towards the middle, closely above and below the X-axis, we see items describing

music heard on the radio, TV, while watching a film or video, as well as the item “I heard it long ago”.

What these items have in common is that they concern actually hearing the music, a direct music experience. Furthermore, the (broadcasting) media, radio, TV, video and cinema are (as the name implies) rather broad media. Thus on the radio there is a broad range of artists, watching music on TV shows we see artists amongst other artists, similarly film music CD's often consist of a number of artists. As people carry music in their head, the item “I heard it long ago” also relates to a range of artists.

On the right hand side towards the middle, closely above and below the X-axis, we see items about reading information on music, someone recommending (in speech) music and browsing through music (on shelves) in a shop. All of these items do not relate to actually hearing music, i.e. an indirect musical experience. Reading interviews and reviews takes place using broadsheets, newspapers, magazines etc. where there are usually reviews or interviews with a range of artists. Likewise, the word browsing (in a shop), relates to a broad approach, browsing through a range of music products.

We therefore, labelled the X-axis as the BROAD axis. The left hand side indicates a DIRECT music experience and the right hand side indicates an INDIRECT music experience.

Close to the bottom of the Y-axis, there is the item “I heard it in a concert” which is a direct music experience, but this time, it relates to specific music (and not a wide range of possible artists) that someone has chosen to hear (and see). When someone plays music to us on his or her hi-fi, it usually is specific music that a friend wants us to hear (see also Brown et al, 2001). It might be coincidental that “I came across it on the Internet” was plotted near these two items (concert and hi-fi) but most Internet sites seem better suited to searching for specific information rather than browsing across related information.

Close to the top of the Y-axis there are two items “I saw an interview with the artist” and “I saw it advertised”. The first one relates to a TV show where there is usually one music artist, rather than a range of music artists. The second item is harder to place.

Tentatively therefore, we label the Y-axis as the SPECIFIC axis. The bottom indicates a DIRECT music experience, whereas the top indicates an INDIRECT music experience.

3.3. Items and Subjects space

Correlating each subject with the others, we created a (70 * 70) similarity matrix which provided the input for a Multi Dimensional Scaling (MDS) analysis, i.e. we derived a two dimensional MDS solution for the subjects.

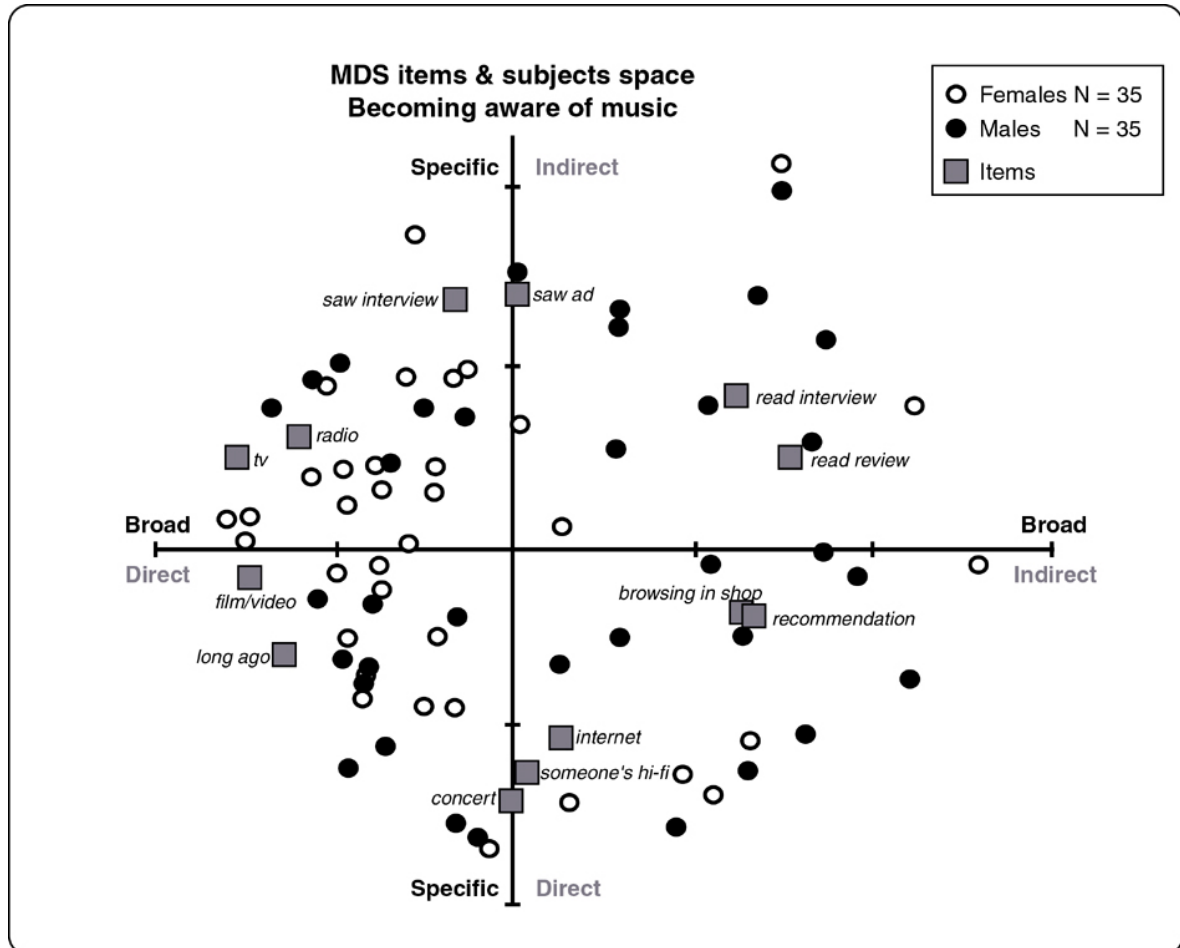


Figure 3: Items and subjects

Figure 3 depicts the subjects space, for the 35 females (open circles) and 35 males (closed circles), as well as the items (grey boxes).

How well does the item space map onto the subject space?

To understand this better, we correlated the position of a subject on the X-axis with their rankings for each item. What one needs to bear in mind is that the higher the position in the group list, the smaller the number. Therefore subjects on the left tend to have a lower number but a higher rank.

We found that the following items correlated strongly with subjects' positions on the X-axis: On the positive correlation side “I heard it on TV”, correlated .819, “I heard it while watching a film/video”, .659 and “I heard it long ago”, .508 and “I heard it on the radio”, .472. On the negative correlation side there were: “I read a review of it”, correlation -.8, “I read an interview with the artist”, -.659, “Someone recommended it”, -.582 and “I came across it while browsing in a music shop”, -.390.

Similarly, we correlated subjects' positions on the Y-axis with ranks of items and found that on the negative side, "I saw it advertised", $-.557$ and "I saw an interview with the artist on TV", $-.509$, indicated that subjects closer to the top of the Y-axis' would have those items high on their list. The bottom of the Y-axis was more associated with the following items, "I heard it in a concert", $.805$ and "I heard it long ago" which (in addition to being associated with the left hand side of the X-axis) are also close to the bottom of the Y-axis, $.468$.

It seems therefore that the two-dimensional item space of the previous section and the subjects' space map onto each other quite comfortably.

From examining the graph it is clear that most subjects, in fact a significant 60%, are in the two left quadrants. In the top left quadrant are 22 subjects, in the bottom left quadrant there are 20 subjects, top right one contains 13 subjects and in the bottom right quadrant there are 15 subjects.

The females of the sample are unequally distributed across the quadrants whereas, the males, by and large are equally distributed across. There are 16 females in the top left quadrant but only 6 males. Thus 17.2% of all the males of this sample and 45.7% of all the females are in the top left quadrant.

Six subjects, who took part in the interview study, also participated in the rank order exercise. For an additional 19 subjects we converted their responses to rating scale questions into rank order data. Rank correlations between individual's lists were calculated and we repeated the MDS exercise but now with 89 subjects. We found that the interview sample was not different from the total sample of the rank order study, spreading out across the space and with a higher concentration of subjects on the left hand side.

4. Discussion

In a separate study we conducted in-depth interviews with music enthusiasts, MP3 collectors and teenagers around their uses and values of music (Brown et al 2001). In parallel with the interview study we conducted a rank order study with a larger sample of 70 people who (like most of us) love and buy music but are not necessarily music enthusiasts. The focus of this study was on how people become aware of (new) music that they end up owning.

Using a special computerised rank order method, we asked people to prioritise a list of 13 items, which related to how people became aware of music that they acquired.

Radio was the number one way in which people become aware of (new) music. A good second was someone playing a CD to you, so, not by "word of mouth" but by "the sound of music". The third place was a bit of a surprise; people become aware of music when they watch films or videos. TV for all its ubiquity disappointingly came in the fifth place.

The bottom two items of the list are "I came across it on the Internet" and "I read an interview with the artist". Above these two is a close group of four items, which have in common that they relate indirectly to the actual music, i.e. reading and hearing

about the artist but not the music, by “word of mouth”. Recently CNET (Farmer, 2000) reported a study by Jupiter Communications that the deciding factor in buying music on-line is:

“ ---- features consumers often request, such as guaranteed file quality and virus protection, the study said, consumers identified these features over content offerings such as artist chats as the most compelling reasons they would pay for music subscription services.”

In our interview study we, too, found that the value of sleeve information was average and information hunters may only be a small proportion of the buyers of popular music.

Thus, the majority of the subjects become aware through actually hearing the music and not by hearing about it. In addition, this majority is dominated by females, lending support to the stereotype that women are more direct than men. Providing electronic services (to complement or support physical shopping) that allow people to hear music rather than to hear about music seems to be a promising area of investment.

However, broadcast media come (effortlessly) to the user as part of their daily activities but e-services are called up by the users (with some effort). It may prove not entirely straightforward to build e-services that work in a “broadcast” manner.

When people rank order thirteen items, there is ample of opportunity for people to disagree. However, we found a highly significant inter group agreement demonstrating the strength of our findings and, indeed, this particular rank order design.

One of the aims of the study was to investigate if the subjects could be segmented in any relevant manner. And, if so, how would the smaller sample of the music enthusiasts of the interview study fit into that segmentation?

We were able to place both the items and the subjects in the same two-dimensional space. One dimension related to “broad” media, such as radio and TV as well as magazines and newspapers. One side of this dimension described “hearing music”, via radio, film, TV, whereas the other side related to “hearing about music”, reading reviews, a friend’s (verbal) recommendation.

The second dimension related to specific ways of finding out about music, e.g. going to a concert, a friend playing (specific) music to you, again with the opposite “hearing” and “hearing about” poles.

The segmentation allowed us to place subjects from the parallel in-depth interview study in a wider context and we concluded that, although the interviewees spent more money on music than others, they are not different from the wider audience in the way they become aware of music.

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