

Cultural classifications under discussion Latent class analysis of highbrow and lowbrow reading[☆]

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Abstract

Cultural classifications, in the sense of categorisations of cultural goods and practices, are often abused in cultural stratification studies to classify people involved with these goods and practices. In this paper the issue is discussed of how to use cultural classifications without begging the question of their definition and without claiming to have at our disposal an archimedean point permitting the classification of cultural goods. Using time budget data from the 1990 Dutch Time Budget Survey (over 3000 respondents) and focussing on one cultural activity (reading in leisure time) latent class analysis – a method for finding the latent classes or categories of variables – provides an empirical basis which permits exploring an extrapolation of Peterson and Simkus's (1992) suggestion (on omnivorous and univorous musical preferences) with respect to actual reading behavior. It is shown that present-day Dutch society is composed of clearly distinguishable categories: non-readers, high readers, and low readers. Besides, there is a small group which combines apparently heterogeneous categories. (Focus on a single cultural practice must make one hesitant to label this group 'reading omnivores'.) Subsequently, a multinomial logit model is described and used to test hypothesized causal relationships between kinds of reading behavior and a number of background (SES) and intervening variables. These variables help to account for class membership and thus make possible the explanation of differences in reading behavior. © 1999 Published by Elsevier Science B.V. All rights reserved.

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1. Introduction

Cultural goods and activities are classified with respect to each other and serve as indicators in cultural stratification. Underlying the classification of cultural goods and practices is a definition of their attributes – an ordering according to resemblances and differences in the nature and value which are ascribed to them. Since Bourdieu (1980, 1983), this type of classification is referred to as ‘symbolic production’. At the same time, cultural goods and activities act as indicators for cultural stratification, and often also for social stratification. They are used to position people who use these goods and practice these activities in the space of lifestyles. In Bourdieu (1984) it is argued (i) that members of a class fraction have a similar lifestyle (*homogeneity thesis*) and (ii) that the structure of the space of lifestyles is homologous to that of the space of social positions (*homology thesis*). Members of the dominant class, with a large volume of cultural and economic capital, are ascribed the legitimate taste and a preference for legitimate cultural practices. Because members of the dominated classes have a lesser volume of capital, they are assumed to have a middle-brow or a popular taste, that is, a preference for less legitimate cultural goods or practices lacking prestige.

In recent research (Peterson, 1992; Peterson and Simkus, 1993), it has been argued that such a division of the space of lifestyles into an elite culture and a mass culture has failed to provide an adequate account of American society since the 1980s. Peterson uses data on US respondents’ preferences for eighteen music genres to argue that higher status groups are more adequately described as *omnivores* in as much as they declared to like both elitist and non-elitist kinds of music. Lower status groups are referred to as *univores*, because they exhibit an almost uniform preference for non-elitist kinds of music and have no affinity with elitist music.

This is a highly interesting view which deserves to be pursued in more detail. In order to test Peterson’s claim about the growing omnivorousness of higher status groups and the univorousness of lower status groups, research on this subject must, however, meet a number of conditions. First, it requires data on a broad range of cultural practices and preferences (music, reading, television viewing, film attendance, sport, etc.), and not just data bearing on one cultural sector. Second, people’s actual behavior and not just their declared preferences should be measured at an individual level instead of the aggregate level of occupation status. Third, a well-argued analysis is required of how cultural classification and cultural stratification are interdependent and how they change over time. Finally, in applying labels such as *omnivore* and *univore* to classify people according to their cultural behavior, one has to be aware that the meaning of the notion of omnivore is always bound not only by the number of cultural sectors that are included in the comparison, but also by the number of cultural items within a sector and the manner in which these are graded according to their degree of legitimacy. Thus far, research in cultural sociology has failed to meet these conditions. Section two briefly considers why these demands are difficult to reconcile.

The aim of the remaining sections is not to provide a test of either Bourdieu’s or Peterson’s claims. The research reported in this paper is exploratory in nature. It

focusses on one cultural activity, reading in leisure time, and it shows that latent class analysis, a method for finding the latent classes or categories of variables (McCutcheon, 1987; Hageaars, 1993), is a suitable technique for analyzing patterns of cultural behavior. One of the reasons for focussing on reading in leisure time is that there is a great variety of reading genres (books, magazines, newspapers) and of reading items within each genre. This variety is well represented in the time budget survey (TBS1990): each genre comprizes a large number of reading items differing in their degree of legitimacy. On the demand side, the participation rate in reading is relatively high; groups varying in social background will be represented. Time budget data from the 1990 Dutch Time Budget Survey (N=3000+) are used to examine whether one or more latent variables can be shown to underlie reading in leisure time. The latent variables accounted for in this paper refer to certain types of combinations of reading items which are differentiated according to their status (highbrow/lowbrow).

The results of the analysis provide an empirical basis which permits testing hypothesized causal relationships between kinds of reading behavior and a number of background (SES) or explanatory variables. These variables help to account for class membership and thus make possible the explanation of differences in reading behavior.

2. Cultural stratification and the role of classifications

2.1. Symbolic production without an archimedean point

Symbolic production is performed by agents and institutions entitled to make (quality) assessments with respect to a particular cultural domain. These judges, especially critics, convey the impression that due to their classificatory concern the supply of goods in each of the cultural subfields is hierarchically ordered in conformity with the meaning and value it is deemed to have for society.

Characteristic of cultural goods is that their intrinsic meaning and value cannot be assessed in a univocal manner, from a single perspective; the archimedean point required to achieve this is lacking. Any provisional assessment of a product's meaning and value is associated with a particular view on art and culture and even on criticism itself, that is, on the method used to perform classifications. Any view of this kind has normative dimensions and is unavoidably subject to change (DiMaggio, 1987). Cultural producers of an older generation may lose attention, for instance, because they discontinue their productivity, due to old age, sickness or death. New cultural producers of a younger generation may manage to attract critical attention. Thus, any momentary classification represents only the provisional outcome of competition between critics and professional judges. This relative instability is found for cultural goods of any prestige level. Categories of cultural goods situated low on the evaluation ladder may sink further or gradually rise on the ladder. Since the Second World War, a rise of this kind can be observed for photography, film and pop music. These domains are gaining increasing recognition as legitimate forms of culture

compared to areas that traditionally qualified as legitimate (literature, classical music). Both the book industry and reading research (including the teaching of literature) commonly differentiate fiction genres according to their content as well as their alleged degree of legitimacy (literature, thrillers, romance novels). In recent decades, the genre of thrillers has improved its position on the legitimacy ladder in comparison with literature. An indicator of changing prestige of forms of culture and art can be found in the growth of space allotted to them by the media, the education curriculum and national or regional arts policy. The kind of quantitative and qualitative content analysis Susanne Janssen (1999) performed on Dutch print media might be adopted to analyze the art coverage by media in other Western countries, e.g. the culture section of the *New York Times* and to consider how longstanding methods of expressing differences (in valuation) between cultural products have started to shift. At the same time, it has become more difficult in the area of cultural stratification to classify people according to homogeneous tastes at a particular level.

2.2. Cultural stratification

Cultural goods are not only ordered in the process of symbolic production, but also serve in cultural sociology as ordering markers as they are used to classify individuals and groups of people. In *Distinction*, Bourdieu goes a long way towards postulating a homology in structure between the space of social positions and the space of lifestyles. On the basis of their class-specific conditions, people internalize from childhood a system of schemes of action, perception, and appreciation. This system, called the *habitus*, is said to be peculiar to a class and to determine the homogeneity of lifestyle of the members of that class. Thus, the dominant class is supposed to have ‘legitimate taste’, the taste for legitimate works; in relation to art, this is also referred to as the “aesthetic disposition, the only socially accepted ‘right’ way of approaching the objects socially designated as works of art” (1984: 29). Members of this class are deemed to exhibit an exclusive preference for cultural practices which are ranked highly by the agents responsible for the symbolic production and the value assessment, whereas members of the dominated classes are supposed to distinguish themselves by their preferences for the less highly-valued practices characteristic of the ‘middle-brow’ or the ‘popular’ taste.

Bourdieu’s theoretical framework has left unanswered a number of fundamental questions we do not pretend to solve. First, there is the problem of ascertaining which properties of the space of social and economic conditions are relevant to an explanation of the cultural practices and preferences characteristic of the various lifestyles. Second, there is the question of the ordering of the constituents of the domain of lifestyles (actions, choices, value orientations) into distinct lifestyles and that of ordering the latter according to the degree of legitimacy each might be granted. Such an ordering presupposes the ability to differentiate not only between the various sectors of art and culture, for instance, music, reading, and television, but also *within* each of these sectors, e.g., by contrasting the predilections for Bach and Telemann, or for Bach’s *Wohltemperiertes Klavier* instead of his *Brandenburg Concertos*, for rap as opposed to house; in the case of reading, there are such contrasts

as Jane Austen v. Catherine Cookson, Gaddis v. Irving, Philip Roth v. Henry Roth, and Grisham v. Bagley (cf. Kraaykamp, 1999).

In addition, questions have been raised concerning the generalizability of Bourdieu's ideas, more specifically their transposability to locations and periods other than France in the 1960s and 1970s, which is the focus of *La distinction*. Trends in Western society toward greater openness facilitate the opportunity for people to improve their social conditions and class position through an educational level and professional status different from that of their parental milieu (Ganzeboom and De Graaf, 1989). Other developments in the social, economic and cultural domain (emancipation, increase in material prosperity, individualization, and changing moral values) have permitted new generations to make use of the continuously broadening supply of cultural goods.

These developments, which led to relatively more autonomous and more idiosyncratic patterns of behavior, made it less plausible that people's choices in one sector would automatically influence their choices in another domain. It seems more likely that people will use their greater freedom to satisfy their needs, as long as lack of money or leisure time does not prevent it. The increase in diversity of tastes and position-taking, therefore, requires a sophisticated adaptation of the traditional explanatory model, in which 'high' culture was deemed to be the exclusive domain of the higher classes and 'popular' or 'low' culture that of the lower classes.

Peterson (1992; see also Peterson and Simkus, 1992) refers to these developments in mapping the musical preferences of occupational groups in the USA. On the basis of the 1982 Survey of Public Participation in the Arts, the authors showed that a divergence of preferences existed between the status groups. As indicated above, it appears to be an open question whether this can be interpreted as "a shift from an elite-to-mass status hierarchy to an omnivore-to-univore status hierarchy" (Peterson, 1992: 243). Omnivores have developed a liking for both highly-classified and low cultural genres, while univores stick to the latter genre. In this perspective, status is gained not only by participating in prestigious art forms, but also by showing off one's cultural knowledge in a wide variety of genres. True, status may be gained by being omnivore, that is, by "knowing about, and participating in (consuming) many if not all [art] forms" (ibidem: 252), but this meaning of the term *omnivore* is immediately transformed into a more restricted notion, once one applies it, as Peterson does, to groups of respondents who state their music preferences. At this stage of investigation, it is felt that the limitation to just one cultural sector represents a less serious drawback than the lack of reliable measurement of behavior within that particular cultural sector or the differentiation of cultural items within that sector according to their degree of legitimacy. As indicated, one of the drawbacks of Peterson's analysis seems to us that respondents' declared preferences, not their actual behavior, was the subject of study. The higher status groups, Bourdieu's dominant class fractions, are known to exaggerate the broadness of their taste, when they are invited to specify their preferences. An attempt is made to avoid a second drawback of Peterson & Simkus' analysis in that behavior is measured at the individual level instead of the group level.

3. Method

For the analysis, we used data from the Time Budget Survey 1990 (TBS), organised by Intomart and commissioned by the Social and Cultural Planning Office; this office was established in 1974 to provide the government with a solid foundation of data in implementing its social and cultural welfare policy. The TBS has been held every five years since 1975. The survey registers respondents' activities by having them take notes, during one week in October, of their time expenditure per quarter of an hour. The method of gathering data on respondents' time budget provides insights into the time spent, without the risk of serious over- or underestimation. The 1990 data were used as the 1995 data were not yet available when we started the project. In this study the focus is on diary data regarding reading. The sample contained 3500 persons of 12 years or older who are representative of Dutch population. The data set was weighted according to family composition, urbanisation, age, gender, and main activity (work, household, school, etc.).

Forms of reading behavior can be related to ten book genres (fiction and non-fiction) and about sixty titles of newspapers, opinion magazines, family magazines and special interest magazines. For this study, we clustered these print media using the aggregates usually applied in the print media industry (Andriese, Herpers and Schouten, 1985; Van de Brink, 1987; Cebuco, 1992; Notu, 1992). Thus, the variation in the use of reading materials between respondents was differentiated into six dichotomous variables, that is, six manifest indicators of respondents' reading pattern. Newspapers were classified, as is done in the print media market, into 'quality' newspapers (those distributed nation-wide among highly-educated and high status professional groups of subscribers) and, 'popular' and regional newspapers. Magazines were subdivided into opinion magazines and family (including special interest) magazines. Books were differentiated according to their status as literary fiction or nonliterary fiction (consisting of romantic novels; adventure novels; detectives and thrillers). In the final section we'll return to the issue of whether more refined distinctions between kinds of printmedia are possible and recommendable.

3.1. *Latent class analysis*

To test the hypothesis that it is possible to distinguish reading participants as either highbrow or lowbrow readers six indicators were constructed on the basis of the 1990 Time Budget Survey (TBS 90): whether or not respondents had read literary books, opinion magazines, quality newspapers, popular books, family magazines and popular or regional newspapers. The first three refer to 'highbrow' reading, the latter three to 'lowbrow' reading.

On the basis of these six indicators, a multiway table can be constructed with 64 cells, each of which represents one of the observed patterns of reading. To be able to explore the idea of a clear distinction between highbrow and lowbrow readers, we need a typology of a limited number of patterns of reading behavior. Latent class analysis is one of the methods which can be used to construct such a typology. The

technique permits the construction of a latent typology on the basis of a set of indicators (the manifest variables).

Like the more widely known factor analysis, latent class analysis belongs to the family of latent structure models. A fundamental difference between the two methods is that both latent and manifest variables are assumed to be measured at an interval level in factor analysis, whereas latent class analysis does not contain assumptions of the measurement level: both items and latent variables are permitted to be measured at a nominal level, thus counting as nonorderable discrete measures.

Hence, latent class analysis is a technique suitable for testing hypotheses on the existence of types of readers. First, the items used are dichotomous (respondents are classified as readers or non-readers of the genre in question) and this renders factor analysis less suitable. Secondly, the prime interest is in a typology of readers consisting of a small number of (nominal) types.

4. Test results

In analyzing the six reading items from TBS 1990 a large number of latent class models was estimated by means of the computer program LEM (Vermunt, 1993, 1996, 1997). First, a number of standard models with one latent variable was tested. These models only differed from each other on the number of latent classes. Then, models with two latent variables were estimated in order to assess whether 'high' reading and 'low' reading were, in fact, clearly different dimensions. Finally, a number of so-called 'local dependence' models (Hagenaars, 1988) was specified. These are models in which the assumption that the indicators are independent, given a respondent's score on the latent variable, is abandoned.

Table 1
Test results for the estimated latent class models

Model	L^2	df	p
1. 1 class	465.17	57	.00
2. 2 classes	163.05	50	.00
3. 3 classes	67.19	43	.01
4. 4 classes	30.38	36	.73
5. 5 classes	18.46	29	.93
6. 2 times 2 classes	102.15	48	.00
7. 2 times 3 classes	38.99	37	.38
8. 2 times 3 classes ordinal	40.76	41	.48
9. 2 times 3 classes linear	76.65	43	.00
10. 3 classes + BF	47.73	42	.28
11. 3 classes + XBF	39.30	40	.50

Table 1 presents the test results for the estimated models. To test the various models the log-likelihood ratio chi-square statistic, L^2 , was used. Model 1, the model with 1 latent class, is the independence model. It is equivalent to testing a latent class model

with only a single latent class within which all of the observed variables are locally independent. If this model were acceptable at the .05 alpha level, we would conclude that the observed variables were not interrelated, and that no latent variable was needed since there is no relationship between the manifest variables that requires explanation. As can be seen from Table 1, however, we must reject the complete independence model for these data ($L^2=465.17$; $df=57$; $p=.00$). The next hypothesis tested the model in which there were two classes of respondents. Although the two-class model did not fit ($L^2=163.05$; $df=50$; $p=.00$), it appeared from the considerable reduction of the L^2 -value that it provided a much better fit than the one-class independence model, hence, that it described at least an important part of the relationship observed between the six reading indicators. Adding a third class also led to a substantial reduction of L^2 of almost hundred points. However, the three-class model also had to be rejected as it did not sufficiently describe the data ($L^2=67.19$; $df=43$; $p=.01$). Although the decrease in L^2 was no longer as pronounced with the addition of a fourth class, the four-class model provided a very good fit of the observed data ($L^2=30.38$; $df=36$; $p=.73$). Since the decrease in the L^2 -value was negligible with a fifth class, the four-class model provisionally appeared to be the best one.

4.1. Models with two latent variables

The reading indicators used in our analysis can be subdivided into two groups: three items for 'high' reading (quality papers, opinion weeklies and literary fiction) and three [items] for 'low' reading (popular or regional papers, family magazines and non-literary fiction). Therefore, it is important to consider whether 'high' and 'low' reading prove to be distinct – possibly correlated – dimensions. This can be explored by using models with two latent variables; one latent variable is assumed to affect only the 'high' items, the other only the 'low' ones.

The model with two dichotomous latent variables (model 6) did not fare badly. Although it had only two more parameters than model 2, its L^2 value was down by more than 60 points. However, model 6 did not sufficiently describe the data ($L^2=102.15$; $df=48$; $p=.00$). The model with two trichotomous latent variables (model 7) provided a very good fit ($L^2=38.99$; $df=37$; $p=.38$). However, the parameters of this model are hard to interpret, because it is not possible to order the categories of the two latent variables in such a way that the probabilities increase for all items. Models 8 and 9 illustrate two different ways in which the latent variables can be interpreted as ordinal. Model 8 contains the inequality constraints propounded by Croon (1990). They are to the effect that the probability of responding positively (which means that the respondent reads the material in question) increases monotonously per class. This model provided a very good fit ($L^2=40.76$; $df=41$; $p=.48$). In model 9, the conditional response probabilities are parametrized with the help of a loglinear model whereby a priori scores, in this case the scores 1, 2 and 3, are attributed to the categories of the latent variables (Clogg and Shihadeh 1994, Heinen 1996). This model did not provide a good fit ($L^2=76.43$; $df=43$; $p=.00$).

From a comparison of the parameters of models 3 and 4 it appeared that there was a small group in the four-class model whose members recorded inconsistent scores

on the items ‘opinion magazines’ and ‘popular’ or regional newspapers. The same pattern could be observed in the ordinal model with two times three classes (model 8). This can be interpreted in two different ways: either such a group exists or one of the assumptions of the latent class model is violated in the three-class model, that is, the assumption that the items are independent of each other, given a respondent’s score on the latent variable. In order to examine this, a direct effect between opinion weeklies and popular or regional newspapers (model 10) and the three-variable interaction between the latent variable and these two items (model 11) were added to the three-class model.

Both models 10 and 11 fit well ($L^2=47.47$; $df=42$; $p=.28$ and $L^2=39.30$; $df=40$; $p=.50$); it should be noted that the difference in L^2 -value between the two models was significant. It could be concluded that, regardless of the class to which one belongs, the reading of opinion weeklies depends on whether or not one reads popular or regional newspapers and the other way around.

In summary, three models could be considered for service as the definite model: models 4, 8, and 11. Below the analysis is given for the most simple model, model 4. It should be noted that these models do not greatly differ as to the characterization and the size of the classes.

4.2. Parameters

Table 2
Parameter estimates for the model with four latent classes (model 4)

	Class ^a			
	1	2	3	4
class size	0.67	0.13	0.04	0.15
literary books				
no	0.96	0.93	0.87	0.80
yes	0.04	0.07	0.13	0.20
opinion magazines				
no	0.99	1.00	0.24	0.78
yes	0.01	0.00	0.76	0.22
quality newspapers				
no	0.99	0.94	0.97	0.10
yes	0.01	0.06	0.03	0.90
popular books				
no	0.81	0.64	0.75	0.81
yes	0.19	0.36	0.25	0.19
family magazines				
no	0.90	0.00	0.72	0.87
yes	0.10	1.00	0.28	0.14
popular/regional newspapers				
no	0.45	0.22	0.12	0.63
yes	0.55	0.78	0.88	0.37

^a Class 1, nonreaders; class 2, lowbrow readers; class 3, omnivorous readers; class 4, highbrow readers.

Table 2 shows parameter estimates for the model with four latent classes (model 4). The first line (class size) describes the size of the latent classes: 67 percent of the population belongs to class 1, 13 percent to class 2, 4 percent to class 3 and 15 percent to class 4. The remaining section of the table bears on the conditional response probabilities. These refer to the probability of belonging to a particular category of a reading variable, given one's score on the latent variable. For example, the value 0.96 in the first column of the second row means that people belonging to class 1 have a probability of 0.96 of not having read literary books and, therefore, a 4 percent chance of having read such a kind of book. On the basis of the conditional response probabilities, the researcher should aim at labeling the four latent classes.

First, the 'high' reading activities should be considered. Table 2 shows that people belonging to classes 1 and 2 have a very low probability of performing all three high reading activities. Class 3 has a somewhat higher probability of reading literary books than classes 1 and 2 (0.13 versus 0.04 and 0.07) and a very high probability of reading opinion magazines (0.76). Class 4 scores much higher than the other classes on quality papers (0.90), the highest on literary books (0.20), and higher than classes 1 and 2 but much lower than class 3 on opinion magazines.

In considering the 'low' reading items, it was observed that class 1 ranked at the bottom with regard to the reading of popular books and family magazines, and second from the bottom on reading popular or regional newspapers. Class 4 scored a bit higher than class 1 on the first two 'low' items and a bit lower on the popular or regional daily item. Members of class 2 had the highest probability of reading popular books and family magazines and the next best likelihood of reading popular or regional newspapers. Class 3 is noticeable, in the first place, for having the highest probability of reading popular or regional newspapers, and likewise with regard to opinion magazines. With regard to the other two 'low' reading items this class holds a middle position.

In conclusion, it can be affirmed that a very large group (67 percent of the population) spends very little time on reading. Insofar as members of this group read, they focus on popular or regional newspapers. There is, however, also a group of passionate readers of 'low' reading materials. This group, class 2, comprises 13 percent of the population. Finally, there are two groups, 4 and 15 percent of the population respectively, who read 'high' materials. The former group combines the reading of opinion magazines ('high') with that of popular or regional newspapers ('low'). People belonging to the latter group of 'high' readers almost without exception read quality newspapers, and some of them also literary books and opinion magazines. This group also contains readers of 'low' materials, but in far lower numbers than other groups.

5. Reading types and explanatory variables: a logit analysis

The models dealt with in the preceding, exploratory, section involved solely the symmetrical relationships between the variables. They made possible the determination of a typology of four classes. To gain a better insight into this typology's mean-

ing, we examined the extent to which respondents' belonging to a certain latent class could be accounted for by including a number of relevant background or 'explanatory' variables. The variables used were Age (5 categories), Education (7 categories), Gender, Activity (e.g. school, occupation, household; 6 categories) and Time Costs (6 categories).

The relationship between these explanatory variables and the response variable class membership is examined using a multinomial logit model. An important application of this kind of model is "determining effects of explanatory variables on a subject's choice of one of a discrete set of options" (Agresti 1990: 313). First, the parameters of the four-class model were used to calculate the individual scores on the latent variable. This was done through modal assignment; respondents received the score on the reading typology with the highest probability, given the pattern of their observed scores. In this case the number of erroneous classifications was very small, at just 10 percent.

5.1 Test results

Table 3
Test results for the estimated logit models

Model	L ²	npar	R ²	Comp. to model 2		
				L ²	df	p
1. no effects	2831	3	.000			
2. all effects	1718	66	.167			
3. no age	1799	54	.155	81	8	.00
4. no education	2273	48	.084	555	18	.00
5. no gender	1965	64	.130	247	2	.00
6. no activities	1745	51	.163	27	15	.03
7. no time costs	1780	51	.157	62	15	.00
8. no activities and linear effects	1864	15	.145	146	51	.00

Table 3 shows the test results for the estimated logit models. As the models were estimated with a program for loglinear analysis, the LEM program (Vermunt, 1993, 1996), the L²-statistic was used as test statistic. Proceeding in this fashion was not aimed at determining the models' absolute fit, which was impossible due to the low cell frequencies but was done to assess whether certain models differ significantly from each other.³

In addition to the L²-value and the number of parameters (npar), the third column of Table 3 shows an R²-value for nominal variables; this coefficient expresses the amount of variation in the dependent variable explained by the independent variables in the regression equation. Thus, the measure which is based on an entropy measure

³ An alternative approach leading to exactly the same result would be to use minus twice the value of the loglikelihood-ratio function.

of association can be used to assess the relative importance of the various independent variables (Magidson, 1981). Finally, for a number of models, columns four to six in Table 3 show results of the conditional L^2 -test, compared to the model containing all effects.

The model with all effects (model 2) provided a considerable improvement in fit in comparison with the model of no effects in line 1 (model 1) in which class membership was assumed to be independent of the background variables: the gain of 1113 L^2 -points required the use of 63 parameters. The R^2 -value is .167.

To assess the relative impact of the independent variables, models 3 to 7 are each based on the assumption that one of the explanatory variables (a different one for each model) had no effect on the reading typology. From the conditional L^2 -values compared to model 2 and from the R^2 -values it appeared that education was the main explanatory variable. Omission of education as an explanatory factor led to an L^2 that was 555 points higher than the one in model 2. In addition, the R^2 -value was halved from .167 to .084. Another factor that proved to be important is gender. Clearly, the other three factors were far less important. With respect to the variable activity one may even wonder whether it had any effect at all. Although the reduction in L^2 -value in comparison with model 2 was significant, the reduction in R^2 was nil. Given its considerable correlation with the other explanatory factors, one does not wonder that this variable accounts for such a small amount of variation.

Because the effects of the variables age, education and time costs almost always show a monotonous pattern, we finally specified a model (model 8) in which the effect of these variables was hypothesized to be linear (Clogg en Shihadeh, 1994). Furthermore, the effect of activity was omitted in this model. This parsimonious model fitted significantly less well than model 2. The R^2 -value of model 8, however, was hardly less than that of model 2. We can conclude that model 8 comprises the main portion of the explanatory value of the background variables.

5.2 Parameter estimates

Table 4

Parameter estimates and standard deviations for the logit model with linear effects of background variables (model 8)

effect	class 1	class 2	class 3	class 4
intercept	1.53 (.04)	−0.30 (.07)	−1.25 (.08)	0.02 (.04)
age	−0.24 (.03)	−0.07 (.04)	0.28 (.06)	0.04 (.04)
education	−0.35 (.02)	−0.22 (.03)	0.20 (.04)	0.37 (.03)
gender (man)	0.34 (.04)	−0.82 (.06)	0.27 (.07)	0.21 (.05)
time costs	0.13 (.03)	0.02 (.03)	−0.10 (.05)	−0.05 (.03)

Table 4 describes the logit parameters for the parsimonious model 8, the model in which the effects on class membership were hypothesized to be linear. To identify the loglinear parameters effect coding was used. This means that the parameters

summed to zero over the categories of the dependent and the independent variables. The category scores for the linear effects were chosen so as to increase by 1 between the subsequent categories. For the variable age (five categories), for example, the category scores were -2, -1, 0, 1 and 2.

The values of the intercept for the various classes showed what we already knew about the relative size of the classes, which was that class 1 is much larger than the other classes whereas class 3 is much smaller.

The age effects showed that the older an individual is, the less he or she is belonging to class 1, the class of non-readers. In addition, it became clear that the probability of belonging to class 3 increases with age, class 3 being the class of readers who combine the reading of opinion magazines with that of popular or regional newspapers. There is a small negative effect of age on belonging to the 'low' readers (class 2) and a small positive effect on belonging to the other class of high readers (class 4). However, the latter two effects are not significant at the 5 percent level.

All education effects proved to be highly significant. As could be expected, attending higher education increased the likelihood of belonging to the classes of 'high' readers (classes 3 and 4) and decreased the probability of belonging to the other two classes.

When we look at gender differences, it can be observed that men less often belong to the class of passionate 'low' readers (class 2) and, consequently, somewhat more often to the other three classes. It should also be noted that the parameter values in table 4 refer to men. Values for women can be obtained by reversing the sign of the reported parameter values.

Finally, time costs have a positive effect on individual's likelihood of belonging to class 1 and a negative effect on membership of class 3. Hence, the higher the time costs, the more likely an individual is to belong to the group of non-readers and the less likely that individual will belong to the group of opinion magazine readers. The effects of time costs on belonging to classes 2 and 4 are not significant.

6. Concluding remarks

This paper explored methods of analyzing the interdependence between cultural classification and cultural stratification. Cultural classification was used to refer to the process of categorizing cultural goods and practices as well as to the results of this process. At the same time, cultural goods and practices play an important role in another process, that of classifying individuals and groups who use these goods and through their cultural behavior display their likes and dislikes, their tastes, and their lifestyles. The latter kind of classification was labeled cultural stratification. In analyzing these processes from a meta-level viewpoint, social researchers must take into account that both cultural classification and cultural stratification are ongoing and related processes for which analysts lack an archimedean point. To illustrate a method of overcoming this lack, we focussed on a single cultural practice, reading in leisure time, and considered the way in which people used three kinds of reading materials (fiction books, magazines and newspapers).

With the help of latent class analysis, this investigation examined which latent categorical variables and which (latent) classes were below the surface of the reading behavior of respondents in the 1990 Time Budget Survey (TBS 90). The technique made it possible to assess respondents' probabilities of scoring on a specific combination of six manifest reading indicators. The departure point of our first exploratory analysis was the idea that one (or more) latent variable(s) may be hypothesized to be an underlying factor in respondents' reading activities in leisure time. In future research, it would be desirable to use a greater number of manifest reading indicators, not only to make more refined distinctions between the reading categories than the dichotomies (high/low) currently applied, but also to differentiate consumer magazines into various subcategories and to further distinguish between various kinds of literary fiction. To some extent, it is believed that this will be possible using new data from TBO 1995 and 2000; our present data do not lend themselves to such an approach.

The current analysis provided the empirical basis required to answer a question bearing on the possibility of making a clear-cut distinction between reader types. One question was whether it was possible to distinguish between 'highbrow readers', 'lowbrow readers' and nonreaders. We are inclined to answer this question in the affirmative despite the small anomalous group of readers who tend to combine the reading of regional or popular newspapers with that of opinion magazines. In all likelihood, this group consists of people who prefer to read a regional newspaper because it is linked to the region in which they live, but use an opinion magazine for background information. Further analysis could clarify this issue, for which alternative explanations could be given, e.g., that opinion magazines cannot be clustered in a uniform fashion but need to be differentiated into various types, according to dimensions such as political orientation or cultural innovativeness (avant-garde vs traditional). Though this group combines apparently heterogeneous categories, both this qualification of the heterogeneity and the limitation to one cultural sector should make one hesitant to label this group 'omnivores'.

The analysis showed the existence of three other groups, each much larger in size than that of class 3: people who read few and, at best, lowbrow items (class 1, which could be labeled 'nonreaders'); lowbrow readers (class 2) and highbrow readers (class 4).

Given the focus on just one cultural sector, our research does not meet the important range condition mentioned in the introduction as one of the prerequisites for an empirical testing of Peterson's view on the shift from an elite v. mass distinction toward an omnivore / univore split in cultural participation. Yet our analysis may serve to enhance the awareness of a number of problems preventing from meeting these conditions. It also appears to indicate a way to at least partly solving these problems. For one thing, the analysis was based on the measurement of behavior instead of declared preferences. In the second place, it appears that by applying latent class analysis it is possible to identify more refined types of readers according to each type's specific method of combining reading items. By examining what kinds of magazines, book genres and newspapers are combined with each other, one can obtain a more precise picture of categories of readers and, in future longitudinal

or cross-sectional research, of changes in reading behavior. In addition to the existence of four latent classes, our research revealed other important aspects of cultural stratification by making it clear which (age, education and gender) characteristics were particular to each of these reader types.

In the current analysis, the extent to which reading in leisure time suffered from the competitive use of other (non-print) media was disregarded (see on this topic Knulst and Kalmijn's (1988) analysis of TBS 1975, TBS 1980 and TBS 1985, and Van Eijck and Van Rees's (1999) analysis of changing reader types between 1975 and 1995). For cultural policy reasons, it is useful to increase our insights into patterns of cultural practices. More specifically, how do respondents cluster various cultural activities, how do they combine specific reading categories with watching certain TV programs or attending outdoor activities? Knowledge of these patterns seems a prerequisite for arguing that a respondent's cultural participation may be characterized in a specific way, and whether, in relation to research on differences in cultural participation, the current distinction between 'high' and 'low' is losing its validity, as is generally argued.

Further analysis of reading items, television programmes and other cultural participation items are under way using the survey data of the period 1975 – 1995 in order to delineate changes in reading and other leisure activities (Van Eijck & Van Rees, 1999; Van Rees and Van Eijck, 1999; Verboord and Ganzeboom, 1999).

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