Incidental memory for surnames: effects of lexicality and labeling

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Two experiments were conducted to examine the effects of items lexicality and labeling on recall of surnames in two incidental learning conditions. In both experiments 26 surnames varying in lexicality were used: a half of the surnames were words and the other half were nonwords. Surnames were labeled either as "words" or as "surnames". Orienting task in Experiment 1 was pleasantness rating. Results showed that surname-words were recalled better than surname-nonwords. Surname-words labelled as "words" produced better recall than surname-words labeled as "surnames", whereas for surname-nonwords labeling did not make a difference. In Experiment 2 orienting task was association production. The effect of lexicality was repeated. The effect of labeling and lexicality by labeling interaction was not significant. Better recall of surname-words in comparison to surname-nonwords is in line with Cohen's representational hypothesis. The effect of labeling on surname recall is not yet clear.

In everyday-life it is quite common to hear people complaining about poor memory for names. Consequently, books about how to improve your memory tend to pay more attention to memory for names than to memory for other things (e.g., Brown, 1987; Pozzi, 1991). The phenomenon of poor memory for names was already noted by William James (1890), who wrote that proper names were harder to remember than names of general properties and classes of things. Support for this observation was obtained by Herrman and Neisser (1978), who found that memory for names, and exact memory represented the most difficult tasks.

McWeeny, Young, Hay and Ellis (1987) found that under intentional learning condition surnames are much harder to relate to faces and recall than occupations. This was true even for ambiguous labels that could be used as names or as occupations: it was much harder to recall that a person's surname was Baker than to recall that a person was a baker. In spite of the same orthographical form, the items were more diffi-

cult to recall when they were labeled as names, than when they were labeled as occupations. McWeeny et al. suggested that "proper names are learned in quite a different way to other semantic information" (1987, p. 148).

The meaningfulness of names is suggested to be a critical property for memory for names. Cohen (1990) examined the hypothesis that names would be difficult to remember because of their low meaningfulness. In her study the meaningfulness of names and of other identity information (occupation and possession) was manipulated. Meaningless names showed the same recallability as non-words in spite of their familiarity. Meaningful names were remembered as well as occupations when they did not conflict with the meaning of occupations. However, when the meaning of a name disagreed with the meaning of an occupation (Mr. Baker is a carpenter), recall of the meaningful names was poorer than recall of the occupation, indicating that names were treated as meaningless units of information. Cohen (1990) suggested that in everyday life names are habitually treated as meaningless because whatever meanings names may have, these meanings are either irrelevant or in conflict with actual person identity information.

Hall (1982) examined memory for surnames as item specific information, i.e., to-be-remembered information were merely surnames, not their association to any other information (e.g., face). Subjects memorized ambiguous words labeled either as words or surnames. Hall found that labeling had no effects on recall performance and suggested that surnames have the char-

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acteristics of low-frequency words and, consequently, cannot be considered as a special type of mnemonic material. However, Stankope and Cohen (1993) argued that frequency of occurrence is not a source of differences in recall of proper names. Moreover, under some conditions, uncommon, unusual names are learned faster than common, familiar names. Because Hall did not use surnames-nonwords as to-be-remembered items, it is difficult to claim that surnames were treated as words.

In Hall's study, as well as in most relevant studies (see Cohen & Burke, 1993 *for a review*), subjects studied surnames under intentional learning condition. However, as Eysenck (1982) has noted, most human learning can be regarded as incidental learning. This seems to be particularly true for surnames learning.

The main objective of this study was to examine memory for names under conditions in which surname-words and surname-nonwords are labeled either as surnames or words under incidental learning conditions. Two experiments were made. Incidental learning condition in first experiment was created by using pleasantness rating as an orienting task. According to Hyde and Jenkins (1969, 1973), this task induces semantic processing, that could be considered as a typical way of processing of verbal material in everyday incidental learning.

If the difficulty in memory for proper names arises from their meaninglessness (Cohen, 1990; Cohen & Burke, 1993), surname-words should be better recalled than surname-nonwords. Also, if meaningful surnames are recalled worse than orthographically identical words (Butcher-butcher) only because of labeling item as surname, then the same item should be better recalled when it is labeled as word than as surname. As Cohen (1990) suggested, to avoid conflict between name meaning and the real characteristics of a person, subjects may not treat meaningful name according to its meaning but as meaningless one.

The question of the effect of surname meaningfulness on memory is also interesting in the context of the level of processing approach (Craik, 1979). Some authors emphasize that not only the nature of the orienting task, but also the type of material define depth of processing. Words typically produce semantic processing, which results in efficient recall (Nelson, 1979; Eysenck, 1982). Accordingly, surname-words should be recalled better than surname-nonwords.

Because most surnames are low in meaningfulness it is possible that surname-words labeled as surnames, independent of their intrinsic meaningfulness, are habitually processed at a low level. This means that perceiving verbal items as surnames prevent the subjects

from seeing possible meanings of the surnames. That could mean that the label of an item acts as an implicit orienting task. Thus, attenuation in recall of surname-words labeled as surnames in comparison to recall of surname-words labeled as words would be expected. The same pattern would not be expected for surname-nonwords, because low meaningfulness of surname-nonwords could be a more potent factor than the label of the item.

EXPERIMENT 1

METHOD

Participants

Twenty-one female and thirteen male high school students in Rijeka, Croatia served as voluntary participants. The age range was 16-19 years ($M=17.4$ years). Participants were randomly assigned into two equal-size groups.

Materials and design

The items used in the experiment were 26 two-syllable and five-letter surnames selected from Arar and Kolić norms (1990) (see Appendix). A half of the surnames were Croatian words whereas the remaineder of items were nonwords. The division of items into the two categories of words and nonwords were made by ten students enrolled in a university program on the Croatian language. The item was chosen only if all raters agreed upon the item's lexicality. The majority of the surnames were low frequencies items (Putanec & èimunovi, 1976) with no significant difference between surname-nonwords and surname-words in frequency of occurrence ($x^2=.17, p>0.05$).

The design was a 2 (Label) x 2 (Lexicality) mixed factorial, with Label (surnames vs. words) as a between-subjects factor and Lexicality (surname-words vs. surname-nonwords) as a within-subjects factor.

Procedure

Participants received a list of 26 verbal items, and were asked to rate each item with respect to pleasantness on a 7-point scale, where 1 was defined as "very unpleasant" and 7 as "very pleasant". For one half of the subjects items were labelled as "words", and for the other half as "surnames". All participants were instructed to work quickly, but carefully. After the pleasantness rating task, participants were given a four-min-

ute unexpected written free recall test. They were given four minutes for the recall.

RESLULT AND DISCUSSION

We used a strict scoring procedure in the sense that a given item was scored as correct if it was exactly the same as the corresponding stimulus item. A two-way analysis of variance (ANOVA) on the number of items recalled yielded a significant main effect of Lexicality, $F(1,32)=34.14$, $p<0.001$. Words were recalled better than nonwords. There was also a significant Label x Lexicality interaction, $F(1,64)=7.76, p<0.01$.
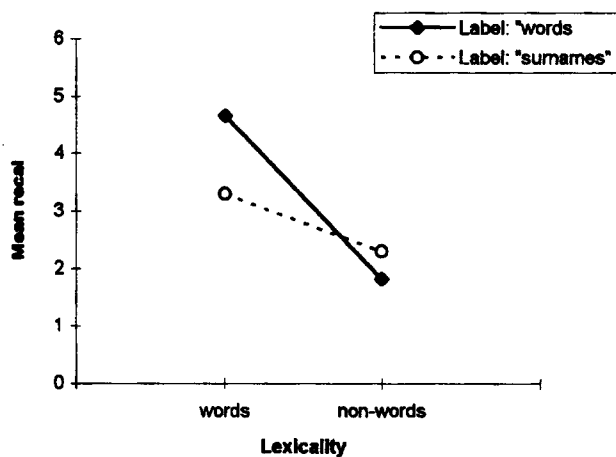

Figure 1. Mean number of surnames recalled as a function of lexicality and labelling.

Figure 1 depicts the interaction between Label and Lexicality. A posteriori Newman-Kuels test showed that surname-words labelled as "words" were recalled better than surname-words labeled as "surnames" $(p<.01)$, whereas the manipulation of label type did not produce any difference in recall for surname-non-words $(p>.05)$.

The results of Experiment 1. showed that surname-words were recalled better than surname-nonwords, and this effect was accentuated when surname-words were labeled as "surnames" as compared to "words". The finding that surname-words are better recalled than surname-nonwords is in line with Cohen's (1990) result that meaningful names are better recalled than meaningless names, and consistent with her hypothesis that the level of recall is affected by the degree of name meaningfulness. The results are also in accordance with the level of processing approach, which states that meaningful material is considered to be a

spontaneous trigger of semantic processing (Eysenck, 1982). That kind of processing results in elaborated memory traces and in efficient recall.

The present results deviate from those by McWeeny et al. (1987) who did not find any difference in recall between surname-words (i. e., occupation) and surname-nonwords. One possible reason for this discrepancy is that stimulus items used in our study are somewhat different from those of McWeeny et al. In their study, all surname-words were occupations, and subjects were asked to remember both the surname and occupation. This may have produced interference between surname-words (occupations) and occupations, counteracting any benefit from their greater meaningfulness.

The finding of the label by lexicality interaction effect is an interesting one. The type of label did not make a difference considering the surname-nonwords. Because the meaning is the main property of words, labeling surname-nonwords as words did not overcome their meaninglessness and made subjects perceive and process surname-nonwords as words. To the contrary, of surname-words seems to be sensitive to the type of label used. When names are labeled as words, their meaning is stressed and subjects are directed to semantic encoding of the item. There are two guides to semantic encoding: its meaning and the label. Cohen (1990) suggested that when names are labeled as surnames they are probably treated as meaningless, because of the conflict between their meaning (e.g., Gull, Knight, Miner or Dull) and real characteristic of the person.

Our findings that surname-words were better recalled when labeled as words than as surnames deviate from Hall's results (1982). He did not find differences in recall of the same surname-words labeled differently. Possible reason for this deviation is the nature of the orienting task. Pleasantness rating task elicits processing different from intentional learning situation which was used in Hall's experiment. Pleasantness rating of words may be different from pleasantness rating of surnames. It is possible that in pleasantness rating surnames of, subjects rated persons having these surnames.

EXPERIMENT 2

If the recall of the surname-words and surname-nonwords differently labeled shows the same pattern as the other semantic tasks, we could say that labeling items as surnames influences their recallability.

Because the pleasantness rating task was self-paced in Experiment 1, the processing time for each item was

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not controlled. Eysenck (1983) stated that when the orienting task involves rating of each of the stimulus words on a single scale (e.g. pleasantness), the subject may compare new words with previous ones in order to form a consistent scale of judgment, thereby producing a displaced rehearsal. In Experiment 2, we used an association production task which also allowed us to control processing time for each item. To control type of processing, subjects were asked to produce associations to stimulus items repeatedly during the presentation interval.

METHOD

Participants

Twenty female and fourteen male high school students in Rijeka, Croatia served as voluntary participants. The age range was 16-19 years (M=17.6 years). They were randomly assigned into two equal-size groups.

Materials and design

The items used in the experiment were the same 26 surnames selected from Arar and Kolić norms (1990) as in Experiment 1. The design was a 2 (Label) x 2 (Lexicality) mixed factorial, with Label (surnames vs. words) as a between-subjects factor, and Lexicality (surname-words vs. surname-nonwords) as a within-subjects factor, as in Experiment 1.

Procedure

The orienting task for the participants was to produce association to the items. Participants received a 26-paged booklet, in which surname-words were written on a half of the pages and surname-nonwords on the other half. The order of surname-words and surname-nonwords was randomized and different for each participants. The participants were instructed to produce as many words associated with the stimulus item as they could. On each page the item was repeated 24 times in order to allow subjects to write down the words that came to their mind after reading the item. The time limit for each item was set to 60 seconds. For one half of the subjects, items were labeled as "words", and for the other half as "surnames". After the completion of the association production task, an unexpected free recall written test was given. The participants were asked to write down the items remembered. For this task four minutes were provided.

RESULTS

We used a strict scoring procedure as in Experiment 1. Means and standard deviations of recall for the experimental conditions are shown in Table 1.

Table 1

Means and standard deviations of number of surnames recalled as a function of lexicality and label after association production task

Condition	n	Lexicality	
		Words	Nonwords
Label: "words"	17		
M		5.76	2.82
SD		1.64	2.07
Label: "surnames"	17		
M		5.18	3.41
SD		1.63	1.50

A two-way analysis of variance (ANOVA) on the number of items recalled yielded a significant main effect of Lexicality, $F(1,32)$=33.84, $p<.001$. As shown in Table 1 words were recalled better than nonwords. Neither the main effect of Label nor Label x Lexicality interaction, was significant.

GENERAL DISCUSSION

The effect of lexicality obtained in our first experiment was replicated: surname-words were recalled better than surname-nonwords. Also, the label effect did not appear as in the first eksperiment. Label by lexicality interaction obtained in the first experiment was not repeated.

These results suggest that lexicality is a relevant characteristic for remembering surnames. The effect seems to be rather general in that it has been found under intentional learning conditions (see Cohen & Burke, 1993), as well as under the two incidental learning conditions of the present study. This result supports Cohen's representational hypothesis that meaningfulness of proper names is the crucial feature for remembering the names. The difficulties in remembering names can be attributed to the relative meaninglessness of proper names as compared to other words. Names cannot be encoded in such a rich semantic network as orthographically identical word. Knowledge about an object or occupation is much richer than about orthographically identical name. Other words, like object names, recruit activation from many seman-

tic associates to which they are linked. Proper names became meaningful when connected with the person. The network entails attributes of the person and not the name. Proper names, having fewer links, receive relatively impoverished activation. The model suggests that names are treated like meaningless words.

Proper names are almost entirely lacking in semantic attributes because of their arbitrariness: the individual could have been called something different and also different individuals with different characteristics could be named equaly. Where names do have a meaning, this is usually misleading because it is hard to associate the individual denoted by the name with the name meaning.

The interaction between lexicality and labeling was not replicated in Experiment 2. This result is in accordance with Hall's result (1982). Processing elicited by the association production task may be regarded as similar to the processing in the intentional learning condition realized in Hall's study. It is possible that in Experiment 2 as in Hall's experiment, surname-words labeled as surnames were treated as meaningful words in contrast to the pleasantness rating task of Experiment 1 in which surname-words labeled as surnames were treated as meaningless surnames. In the pleasantness rating task, all surnames were written on one page and not presented one-by-one as in the association production task. Some of the surnames ended with suffix -i which is typical for Croatian surnames and two of the surname-words were surnames of poets. It is possible that these surnames influence the perception of items as surnames and strengthen the effect of the label surname. When labeled as words, typical surname form diminished the effect of label on recall of surname-words. It is less likely that items were recognized as surnames when presented separately.

The results of Experiments 1 and 2 strongly confirm expected effect of lexicality. The effect of labeling on surnames recall is not clear because of conflicting results in our two experiments. We consider that the effect of labeling on surname recall should be examined taking into account different orienting tasks in incidental learning condition alone with recall in intentional learning condition.

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APPENDIX

List of stimulus surnames

Surnames-nonwords	Surnames-words
BALAŽ	BUTIĆ (Little Thigh)
BALOG	BIČIĆ (Little Whip)
CECIĆ	DUHAN (Tobacco)
ČENAN	GALEB (Gull)
JANEŠ	KOKOT (Cock)
KIKIĆ	MESAR (Butcher)
LARIĆ	POPIĆ (Little Priest)
NOPER	PAPAK (Hoof)
PALJUG	RUDAR (Miner)
PIPUS	TEŽAK (Heavy)
ŠOBOT	SUTON (Dusk)
ZUDIĆ	VITEZ (Knight)
FUMIĆ	ŽALAC (Sting)