

**Mastery pleasure versus mere ownership:
A quasi-experimental cross-cultural
and cross-alphabetical test of the name
letter effect**

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Abstract

Four studies test both the alternative explanation advanced by Hoorens and Todorova (1988) for Nuttin's (1984, 1985, 1987) name letter effect (NLE), and two interpretations for an unexplained finding of the former authors. Flemish, Hungarian and Thai children show an increasing rather than a decreasing NLE over primary school grades (studies 1, 2 and 4). Thai university students and school children prefer own name letters in their 'mother' alphabet (Thai) but also in their second (Roman) alphabet (studies 3 and 4). All these results contradict the primacy of own name writing or mastery pleasure hypothesis. Independently of the time interval between the acquisition of both alphabets, a stronger NLE is found in the subjects 'mother' alphabet than in their second alphabet, contradicting a mitigated mastery pleasure explanation for the stronger NLE in one's 'mother' alphabet (Hoorens and Todorova, 1988). All the data are consistent with Nuttin's interpretation of the NLE in terms of the affective

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consequences of 'mere ownership'. Finally, the striking generality of the NLE over languages, alphabets, and cultures is again demonstrated.

INTRODUCTION

Nuttin (1984, 1985) tested the hypothesis that mere ownership or belongingness to self of a compound stimulus is a sufficient condition for the enhancement of the attractiveness of the own(ed) object's constitutive elements. He demonstrated that letters occurring in one's own name—a salient self-attribute (e.g. Markus and Sentsis, 1982; Dion, 1983)—are preferred above not-own name letters.

In his first studies, Nuttin (1985) visually presented students and primary school children with two lists of letter pairs and asked them to spontaneously choose the more attractive member within each pair. In one list, the letter pairs always consisted of one own name letter (a NL) of the subject and one randomly chosen not-own name letter (a NNL). The other list consisted of NL–NNL pairs of another subject, who was presented with exactly the same two stimulus lists. Thus, subjects were yoked two by two to each other, and each NL–NNL pair of each stimulus list was judged both by the 'owner' of the hidden name and by her or his yoked partner. For each stimulus list, the proportion was compared by which NLs were preferred above NNLs by the 'owner' of the hidden name versus by its 'not-owner'. On the average, more NLs were indeed selected by the owner of the name than by his or her yoked partner. The same result was obtained with letter triads, consisting of one NL and two NNLs.

In a second series of studies (Nuttin, 1987), before writing down their full name, subjects selected their six most preferred letters out of a single visual random presentation of the whole alphabet. For each letter of the alphabet, the mean proportion was calculated by which a letter was chosen among the six most preferred letters when the letter was a NL versus when the same letter was a NNL. A randomization test over the letters of the alphabet was performed in order to test the difference between the former proportion and the latter one. Each letter thus served as its own control, keeping constant all possible determinants of preferences except mere ownership. Again, letters proved to be more attractive to their 'owners' — for whom they were NLs — than to their 'not-owners' — for whom the identical stimuli were NNLs. Moreover, it was demonstrated that merely being a NL even enhances a given letter's likelihood to become one of the most attractive items of the complete set of similar objects (the alphabet).

It is clear that each of Nuttin's research paradigms eliminated artefactual explanations for the NLE, based on the visual and/or acoustic characteristics of NLs (as compared to NNLs) or on their relative frequency (such as mere exposure, see Zajonc, 1968). In addition, the NLE was not restricted to a specific linguistic or ethnographic community. The generality of the phenomenon was examined in 13 different European countries. Across 12 European languages, an (own) name letter effect (NLE) was found for (initial and/or non-initial) letters belonging to one's own first and/or family name (Nuttin, 1987). In order to test whether the preference for NLs depended on a conscious classification of the stimulus letters in NL–NNL categories, Nuttin (1985) presented a group of subjects with the already described stimulus lists and invited them to search for a meaningful pattern in the NL–NNL pairs. Despite

the fact that no time limit was imposed and despite the monetary award promised to anyone who could correctly identify the prearranged pattern, not a single subject could solve the problem. Nuttin concluded from this observation that the NLE did not depend on a conscious recognition of the letters of the alphabet as NLs versus as NNLS. Consequently, the phenomenon could not be interpreted as a result of conscious response strategies applied by the subjects in the absence of any relative preference for NLs. Therefore, the NLE was advanced as the first experimental demonstration that mere belongingness to self is a sufficient condition for the enhancement of the attractiveness of isolated stimulus elements.

However, Nuttin's research (1984, 1985, 1987) left some intriguing questions unanswered. Firstly, in all studies discussed thus far only European subjects were tested. Although the NLE was demonstrated in a large number of nationalities and languages, it could not be excluded that it only bore upon Western subjects or on a small set of alphabets. At the linguistic level, for instance, except for Finnish and Hungarian—which are Finno-Ugrian languages—the languages of all samples belonged to the Indo-European group. Consequently, the NLE could be specific to the alphabets used by these language families. It is clear that such a linguistic and/or cultural specificity of the NLE would call for a much more limited explanation of the phenomenon than Nuttin's mere ownership interpretation.

Secondly, although artefactual explanations such as mere exposure or conscious response strategies were indeed eliminated, Nuttin did not directly test alternative interpretations for the NLE. Such a systematic analysis is especially important as the mere ownership hypothesis carries several far-reaching implications for broad topics in (social) psychology. More specifically, the NLE raises some important questions and implications for research on the self as an affective-cognitive structure, the affect-cognition relationship and part-whole associations (see Nuttin, 1985, 1987).

Therefore, Hoorens and Todorova (1988) tested the alternative interpretation that the NLE is a remainder of the positive 'mastery' affect most people experienced when first succeeding in reading and writing one's own name. Their 'primacy of own name writing hypothesis' started from the observation that typically, the own first and family name are the very first items children can read and write. These socially rewarded initial successes on such a valued ability as written language are thought to be accompanied by an intense positive 'mastery' affect, so that the NLs associated with it do entail an enhanced attractiveness throughout the following years. According to the hypothesis, getting acquainted with a second alphabet is unlikely to elicit any comparable mastery experience. Indeed, pre-existing writing skills render the acquisition of a second alphabet, usually in the context of foreign language studies at high school or university, incomparably less thrilling. In addition, the study of a second alphabet does not typically start with practising the own name (letters). Therefore, the primacy of own name writing hypothesis only predicted a NLE in the very first alphabet one ever learned to master (in contrast to Hoorens and Todorova (1988), to stress the 'mastery' aspect of the crucial experience we will further call this explanation of the NLE the 'mastery pleasure hypothesis').

Hoorens and Todorova (1988) presented a Cyrillic and a Roman letter preference task to Bulgarian students who normally used the Cyrillic alphabet but who became familiar with the Roman alphabet through their foreign languages courses. In both alphabets a significant NLE was obtained, contradicting the mastery pleasure hypothesis. Moreover, although the Cyrillic NLE was stronger than its Roman counterpart,

both effects were positively correlated. As individual differences in attachment to self should manifest themselves over measurements, this positive correlation supported the mere ownership hypothesis.

Two major problems hindered an unequivocal interpretation of the results of Hoorens and Todorova (1988). In the first place and most important, it is clear that for practical and ethical reasons one's NLs cannot be manipulated. Consequently, research on the NLE can at best be quasi-experimental in nature. Due to the limitations inherent to quasi-experimental designs, firm conclusions on the rejection or maintenance of explanatory hypotheses should not be drawn from a single study. It seems desirable that such conclusions be based on convergent results, preferably collected using different designs and/or focusing on different predictions derived from the same hypothesis.

In the second place, the NLE was significantly weaker in the subjects' 'second alphabet' (i.e. Roman) than in their 'mother' alphabet (i.e. Cyrillic). As noted by Hoorens and Todorova (1988), it is possible that without being the major determinant of the NLE, mastery pleasure has some importance in the genesis of the phenomenon. On the other hand, the observed difference could be accounted for by the mere ownership hypothesis as well — one's own name written in a foreign alphabet may not become such an integrated part of the self as one's own name written in the own 'mother' alphabet. The Hoorens and Todorova (1988) data did not allow the disentanglement of both explanations.

The studies reported in the present paper aim at answering the questions raised above. More specifically, they were designed (a) to further evaluate the mastery pleasure hypothesis, (b) to test a mitigated mastery pleasure hypothesis (mastery pleasure as a co-determinant of the NLE) if the original formulation of the 'mastery' hypothesis is to be rejected, and (c) to further explore the generality of the NLE over cultures, languages and alphabets. In a first set of two studies, a second prediction derived from the mastery pleasure hypothesis was tested (the first prediction being the exclusiveness of the NLE for one's 'mother' alphabet, tested by Hoorens and Todorova (1988)). More specifically, if the 'mastery' explanation is correct, then the strongest NLE should be observed shortly after the initial writing skills are mastered. Afterwards, the preference for NLs should weaken towards a relatively stable level (for a more detailed explanation, see below). To test this prediction, the evolution of the NLE over primary school grades in Flemish and Hungarian children was examined. As the results of both studies corroborated the conclusion of Hoorens and Todorova (1988), a second set of two studies was designed to test the mitigated mastery pleasure hypothesis. The role of primacy of mastery of the own name (letters) was examined by comparing the NLE in the 'mother' versus the second alphabet of Thai children and adults who had studied both alphabets either simultaneously or with a considerable time interval. Also, using Thai subjects and Thai letter stimuli, the latter studies allowed a stringent test of the generality of the NLE over languages, alphabets and cultures. Thai letters do not only show extremely little visual resemblance to e.g. Roman letters, but more important the Thai language belongs to another linguistic family (Sino-Tibetan) and its alphabet derives from a completely different origin (the Devanagari script of South India) than the formerly used languages and alphabets. The challenges related to the vowel characteristics of the Thai alphabet and to Thai naming and addressing habits for any attempt to demonstrate a significant NLE will be discussed below.

STUDY 1

Study 1 aims at further evaluating the mastery pleasure explanation for the NLE. A first step towards this evaluation has been taken by Hoorens and Todorova (1988), who tested the prediction that in 'bi-alphabetical' subjects the NLE should be exclusive to one's 'mother' alphabet. Showing a significant NLE in the second (Roman) as well as in the 'mother' alphabet (Cyrillic) of Bulgarian students, their results contradicted the mastery pleasure explanation for the NLE. In the present study, an alternative prediction derived from this hypothesis is tested, focusing on the evolution of the NLE over primary school years rather than on a comparison of the NLE in different alphabets. If the results lead to the same conclusion as the data of Hoorens and Todorova (1988), then the hypothesis can be rejected with more confidence. If no converging evidence is obtained, then both Hoorens and Todorova's (1988) and the present data should be interpreted with more caution.

If the mastery pleasure hypothesis is correct, then the NLE should be at its maximum strength shortly after the initial writing skills are mastered. As this crucial experience draws back in time and memory and as the contingency between 'being a NL' and 'being a letter I can write' fades out, the NLE should gradually weaken towards a relatively stable level. Indeed, although children frequently write their own name, this practice drowns in the massive writing experience with all the letters of the alphabet accumulating over the same period. In contrast, Nuttin's mere ownership hypothesis offers no reason to predict a decreasing trend in the NLE over primary school grades.

In order to test this prediction, a group of Flemish (Dutch-speaking Belgian) second, fourth and sixth graders participated in a letter preference task designed after Nuttin's (1987) cross-national studies. If the mastery pleasure hypothesis is correct, then the strongest NLE should be obtained in the youngest sample. This relatively simple cross-sectional design was preferred above a more complicated cohort-sequential strategy (Schaie, 1965) because we believed that in the particular case of our study the much greater complexity of collecting and analysing cohort-sequential data would not be justified by a comparable gain of control on disturbing variables such as cohort-effects (e.g. subjects born in 1980 may be different from subjects born in 1984). Generally, in cross-sectional research differences between cohorts might yield apparent but misleading developmental changes. However, as the NLE was obtained in different cohorts (Nuttin, 1985, studies 1 and 2; Nuttin, 1987; Hoorens and Todorova, 1988) and as only 4 years elapsed between the birth of the oldest and the youngest subjects of study 1, the chance of the phenomenon being subject to considerable cohort-effects seemed relatively small.

Method

Subjects

Forty-five second, 81 fourth and 69 sixth graders of two Flemish primary schools participated in the study. They were collectively tested in their regular classes by one of two Flemish female experimenters and in the presence of their usual class teacher. The confounding of age effects and experimenter factors was controlled by assigning parallel groups to each of the two experimenters collecting the data.

Materials

Each child received a booklet containing one page with a random presentation of Japanese katakana characters and one page with the actual letter stimuli. The katakana characters were included as an example for the choice task. The stimuli for the crucial letter choice task consisted of a single page with a random presentation of all the Roman capitals, taken from Nuttin (1987). In order to eliminate possible letter order effects, two different random orders were used. However, this variable was not included in the data analysis.

In addition, a two-sided board was prepared containing two examples for the preference task. On one side, 10 quadrangles of different colours were pasted. On the other side, all figures from zero to nine were written in a random order.

Procedure

As in Nuttin (1987), subjects were instructed to choose their six most preferred letters out of a single random presentation of all the letters of the Roman alphabet. Of course, the instructions were adapted in order to be understandable by second graders. After explaining that people do prefer different objects and activities, the experimenter introduced and demonstrated the choice task using two examples: one example with colour stimuli and one example with digits as stimuli. As a last example, the children themselves were invited to encircle their six most preferred katakana characters. However, the signs were not named as such, nor was the task presented as an example. After having made sure that the subjects correctly understood the instructions, the experimenter instructed the children to encircle the six letters they liked best. Finally, they filled out their full name, date of birth and sex on the last page of the booklet.

This procedure was based on a pilot study by Sas (1986), who in an individual interview setting asked children to encircle their four most preferred letters. Although she already obtained a NLE in children of different primary school grades, it also became clear from her study that asking subjects to choose no more than four favourite letters restricted the number of potentially chosen NLs too much. Moreover, she found that providing at least one practice trial before the actual letter preference task was necessary for the youngest children to understand the instructions.

Results

The data were analysed in the same way as in Nuttin (1987). For each letter, the mean percentage was calculated by which it was chosen among the six most preferred letters of the alphabet by subjects for whom the letter was a NL versus by subjects for whom the same letter was a NNL. A randomization test (with 4000 permutations; Edgington, 1980) over letters was then performed in order to test whether the former percentage was significantly higher than the latter one. Separate analyses were performed for each grade level and for letters of the full, first and family name. For each analysis (e.g. for first name letters alone), letters occurring in another part of the name but not in the critical one (in this example, letters only occurring in the family name) were dropped from the analysis. Although randomization tests yield exact probabilities, significance levels were rounded upwards to a single meaningful figure.

Within each grade level group, NLs of the full, first or family name were significantly more often chosen among the six most preferred letters of the alphabet than NNLs (Table 1).

Table 1. Mean percentage by which own name letters (NLs) and not-own name letters (NNLs) are chosen among the six most preferred letters of the Roman or the Hungarian alphabet by Flemish and Hungarian children of different primary school grades (data from study 1 and study 2)

	Second		Grade level Fourth		Sixth	
	NL	NNL	NL	NNL	NL	NNL
Flemish sample						
Full name	22.5	18.1	41.8	12.0	40.9	12.9
First name	49.2	18.7	59.0	11.9	59.9	13.0
Family name	28.2*	18.2	28.1	12.0	27.3	13.0
Hungarian sample						
Full name	25.2	11.7	27.6	8.6	29.0	10.4
First name	29.9	11.4	41.8	9.2	37.0	11.1
Family name	24.0	12.0	21.3	7.9	24.5	9.8

* Significantly different from NNL at $0.005 < p < 0.05$.

All other NL-values are significantly different from NNL at $p < 0.005$ minimum.

p-Values are obtained with a randomization test for matched pairs with 2,000 permutations, as described in Nuttin (1987).

In order to directly compare different grade levels, an ANCOVA was performed with grade levels as an independent variable, the number of NL-choices as a dependent variable and the number of different NLs in one's name as a covariate¹. The mean adjusted number of NL-choices for subjects of the different grades is shown in Figure 1. This number varied significantly with age ($F(2,191) = 27.5$; $p < 0.005$), following both an increasing linear trend ($F(1,191) = 4.1$; $p < 0.05$) and a quadratic trend ($F(1,191) = 8$; $p < 0.006$). Using SAS's PDIFF option (SAS, 1985), yielding significance levels for all pairwise tests of treatment differences between estimated least-squares means (adjusted means), significant differences between the second and the fourth ($p < 0.002$), and between the second and the sixth grade ($p < 0.05$) were obtained.

The same grade effect was obtained for first name letters separately ($F(2,191) = 26$;

¹ Preliminary analyses had shown that the number of different first name letters significantly increased over grades, probably due to changing fashions in namegiving over our subjects' years of birth. Therefore, a simple ANOVA on the number of NLs chosen by children of different grades might yield an artefactually produced increasing trend, based on differential *a priori* chances of choosing NLs.

The use of an ANCOVA for the analysis of our quasi-experimental data was no ideal solution either, as the independent variable (grades) and the covariate (name length) were positively correlated. Strictly spoken, in such cases it is possible that the covariate is a function of the independent variable. However, when weighting the problem of potentially attenuating existing grade effects (by performing an ANCOVA) against the possibility of artefactually obtaining a significant effect (in the case of an ANOVA) we preferred to perform an ANCOVA rather than an ANOVA. It should also be noted that although the mastery pleasure hypothesis focuses on the effect of age (the independent variable), the length of the name (the covariate) cannot be a function of age but rather of the cohort. In contrast, as the NLE has been found in subjects of different cohorts (Nuttin, 1985, 1987) it is unlikely that cohort effects strongly influence the NLE. Therefore, it seems improbable that the independent variable could have strongly affected the covariate.

$p < 0.008$). The quadratic trend ($F(1,191) = 7.5$; $p < 0.007$) and the difference between the second and the fourth grade ($p < 0.002$) were significant, while the linear trend ($F(1,191) = 3.8$; $p < 0.06$) and the difference between the second and the sixth grade ($p < 0.06$) were marginally significant. Family name letter choices did not vary with grades.

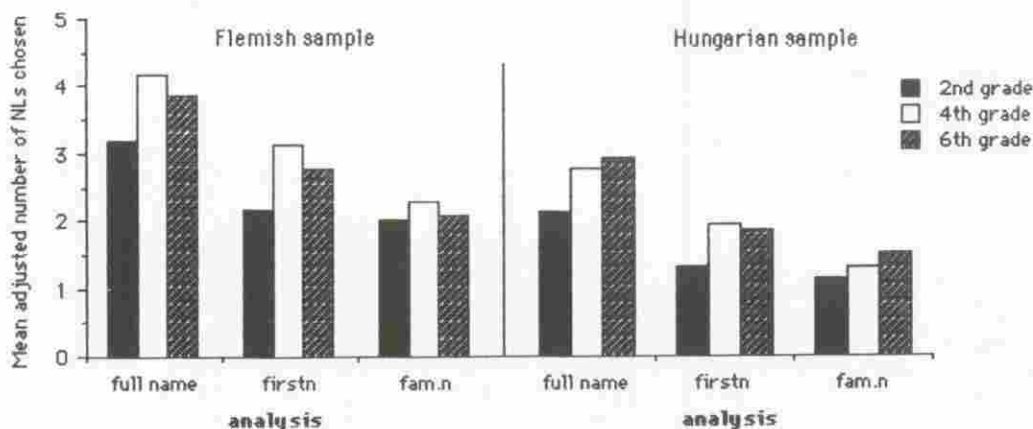


Figure 1. Mean adjusted number of own name letters (NLS) chosen among the six most preferred letters of the alphabet by Flemish and Hungarian children of different primary school grades (data from studies 1 and 2)

Discussion

A significant NLE was found in primary school children from the second, the fourth and the sixth grade. In a letter preference task, NLS were relatively more often chosen among the children's letter top-six than NNLs. In second graders, for instance, the average probability of a letter to be a most preferred letter was 0.49 when this letter happened to be a first name letter versus only 0.19 when the same letter was a NNL. The effect was even stronger, however, in fourth and sixth graders than in second graders. Moreover, this increase of the NLE over age was especially clear for first name letters. The absence of a grade effect for family name letters may be related to the fact that the NLE was significantly smaller for family name letters than for first name letters, as additional analyses have shown (see also Nuttin, 1987).

Before extensively discussing the theoretical relevance of our data for the mastery pleasure hypothesis, we first report a replication of the present study in a different subject pool, using another language and belonging to a somewhat different ideological community, *viz.* an Hungarian elementary school.

STUDY 2

Although the NLE was demonstrated in 13 different language groups and with university students from different nationalities and cultures (Nuttin, 1987; Hoorens and Todorova, 1988), the possibility remained that the evolution over primary school grades, found in study 1, was typical for a specific cultural or linguistic group. Indeed,

our cross-sectional study was only run with children of a specific linguistic and cultural group, using letters of only one of the many existing alphabets as stimulus materials.

Therefore, we wanted to closely replicate the Flemish study on Hungarian children. This way, the subjects in our replication did not only belong to a somewhat different cultural, ideological and linguistic group, but they also used a somewhat different — the Hungarian — alphabet. The Hungarian language was chosen mainly because Hungarian university students showed no significant NLE in Nuttin's (1987) cross-national study. In this study, however, the letter stimuli did not include some typically Hungarian letter combinations (i.e. certain letter-letter and letter-diacritical sign combinations). Consequently, subjects having these typical combinations in their names could not select them among their six most preferred letters. In contrast, an unpublished study by Nuttin, including Hungarian letter combinations in the random presentation of the letter stimuli, did yield a significant NLE in Hungarian students. Therefore, choosing a Hungarian subject group and using the complete Hungarian alphabet allowed us to further clear up the question whether the absence of a significant NLE in Nuttin (1987) was due to the absence of typical Hungarian letter combinations in the stimulus materials. At the same time, it allowed a stringent test of the generality of the data from study 1.

Method

Forty-five second, 49 fourth and 51 sixth graders participated in the Hungarian study. They were all tested by the same Hungarian female experimenter and in the presence of their class teacher. All other details of subject treatment, materials and procedure were the same as in study 1, except that the letters of the Hungarian alphabet were used as stimulus materials instead of the Roman alphabet.

Results

Data were treated in the same way as in study 1. At all grade levels and for all analyses, letters were significantly more often chosen among the six most preferred letters when they happened to be NLs than when they were>NNLs (Table 1).

As suggested by Figure 1, the ANCOVA over grades showed a significant effect ($F(2,141) = 3.2; p < 0.05$) due to a linear increase ($F(1,141) = 5.8; p < 0.02$) of the number of NLs chosen among the letter top-six. There was a significant difference between the second and the sixth grade ($p < 0.02$), and a marginally significant difference between the second and the fourth grade ($p < 0.06$). For first name letters the linear increase over grades was only marginally significant ($F(1,141) = 3.2; p < 0.08$), but significantly more NLs were chosen by fourth graders than by second graders ($p < 0.05$). Family name letters did not show a grade level effect.

Discussion

The observation of a significant NLE in Hungarian subjects extends the results of Nuttin (1987), who obtained a significant preference for NLs in a large number of European languages and nationalities but not in Hungarian subjects. Based on

the present results, it seems likely that the absence of a significant NLE in Nuttin's study can be ascribed to the fact that some typically Hungarian letter combinations were not included in Nuttin's (1987) letter stimuli. This restriction may indeed have prevented subjects from choosing some 'really' own name letter(combination)s.

Replicating the results of study 1 on Flemish subjects, study 2 yielded a significant NLE in Hungarian school children from different grades. As such, they also replicate the results of Nuttin (1985, study 1), who first demonstrated the NLE in primary school children, and the preliminary data of Sas (1986) whose pilot study showed a significant NLE for full and first name letters in French and Dutch-speaking Belgian second, fourth and sixth graders. The absence of a family name letter effect in all but two groups of her study (Dutch-speaking fourth and French-speaking sixth graders) might be due to the limited number of four letters to be chosen by the subjects. Indeed, Dutch and French names contain about nine, resp. 10 different letters on the average, so that most subjects could only choose a very limited selection of their NLs. Since other studies also showed a stronger NLE for first name letters as compared to family name letters (Nuttin, 1987), when only a very limited number of letter choices is allowed we can expect subjects to select first name letters rather than family name letters. Although Sas did not directly compare the magnitude of the effect over grades, her data did suggest an increasing trend over grades.

In both study 1 and 2, the NLE showed an increase over grade levels which was significant for full and first name letters but not for family name letters. As this increasing trend was found in two different linguistic, cultural and alphabetical groups, it cannot be due to some peculiarity of a specific population's subjects, names, language or teaching habits. It can be concluded, then, that the data contradict a prediction derived from the mastery pleasure hypothesis. This hypothesis would indeed predict a decreasing rather than an increasing trend. The results of both studies are thus in agreement with Hoorens and Todorova (1988). Although these authors found a larger NLE when subjects were tested with their 'mother' alphabet than with their second alphabet, the very appearance of a significant NLE in a second alphabet was in contrast with the prediction derived from the mastery pleasure hypothesis that the NLE should be restricted to the very first alphabet subjects ever learned to master. Therefore, the empirical evidence warrants the rejection of the mastery pleasure hypothesis.

It might be tempting to interpret the increasing NLE over primary school grades in the context of the often demonstrated increasing stability of the self-concept over the same period. The gradual acquisition of a well-articulated self-concept could be assumed to cause an increasing NLE, darkening any decrease due to a mastery pleasure mechanism. It should be noted, however, that such a reasoning already implies that the NLE is an essentially self-related phenomenon or, in other words, that the mastery pleasure hypothesis does not offer an acceptable explanation for the NLE. As a consequence, the possibility of a NLE linked to developmental self-concept changes—although plausible in its own right—does not imply a threat to the validity of our results for the evaluation of the mastery pleasure hypothesis.

As already discussed, the Hoorens and Todorova (1988) data did not allow to disentangle two possible explanations for the weaker NLE in a second alphabet as compared to the 'mother' alphabet. On the one hand, it is possible that the NLE partly—but not principally—depends on a mastery pleasure mechanism (this hypothesis is further called the mitigated mastery pleasure hypothesis). On the other hand,

however, the lack of relevant experiences mediated by the own name written in a foreign alphabet may be responsible for the difference. Indeed, the own name written in a foreign alphabet may not become such an integrated part of the self as one's own name written in one's 'own' alphabet, so that the 'second' version of the own name can be considered as less 'belonging to self' or less 'own' than the 'mother' version. The cross-sectional data of the studies 1 and 2 could not clear up this issue. Considering the assumed multiple determination of the NLE which is implicitly present in the mitigated mastery pleasure hypothesis, a decreasing trend in the NLE over primary school grades, due to the decreasing relevance of the primacy mechanism, could indeed be obscured by an increase caused by another determinant of the NLE.

In order to gain more insight in the degree to which a mastery pleasure mechanism might co-determine the NLE, we wished to manipulate quasi-experimentally the interval between the acquisition of the 'mother' alphabet and a second alphabet. If the observed difference between the NLE in both alphabets is due to the temporal priority of mastery of (NLEs in) the 'mother' alphabet, then this difference should only be found in subjects who acquired their second alphabet a few years after their 'mother' alphabet. If it is due to the less 'own' character of one's own name in a foreign alphabet, then a weaker NLE in the second alphabet should occur independently of the time interval between the study of both alphabets.

Of course, practical and ethical considerations exclude an experiment in which the time interval between the acquisition of different alphabets would be manipulated. Therefore, a 'natural' quasi-experimental manipulation of this variable was sought for. An acceptable realization of this endeavour was found in the double educational system of Thailand. Indeed, although the Thai alphabet is the regular writing system in Thailand, Western languages and the Roman alphabet are generally taught before the end of primary school education. However, depending on the educational system this happens either simultaneously with the initial study of the Thai alphabet (private schools) or only several years later (state schools). Thanks to this intra-cultural variation in the timing of the acquisition of the 'first' and the 'second' alphabet, the effects of mastery pleasure and of mere ownership could be disentangled. According to the mastery pleasure hypothesis it is crucial for the development of a stronger NLE in the 'mother' versus the 'second' alphabet that a considerable time interval exists between the acquisition of both alphabets. In contrast, the mere ownership hypothesis would predict an inter-alphabetical difference even in the absence of such an interval.

At the same time, a letter preference study on Thai subjects, using Thai letters as experimental stimuli, allowed further exploration of the generality of the NLE over national, linguistic, alphabetical and cultural boundaries — including different social styles of naming and addressing.

STUDY 3

Study 3 aims at answering three questions. In the first place, can the already demonstrated generality of the NLE be extended to a clearly different culture, alphabet and language family? Secondly, can the Hoorens and Todorova (1988) data be replicated? More specifically, can a significant and intercorrelated NLE be demonstrated

within subjects familiar with both the Thai and the Roman alphabet, the latter effect being weaker than the former one? If the answers to the foregoing questions are affirmative, a third question can be addressed, namely: does the differential NLE in both alphabets depend on the existence of a considerable time interval between the subjects' mastery of the two alphabets? A positive answer would give support to the mitigated mastery pleasure hypothesis, *viz.* that mastery pleasure—while not being a sufficient explanation—does have some importance as co-determinant of the NLE. It is clear that the order of these questions is not determined by their theoretical importance but by their fundamental relevance. The answer to a preceding question must indeed be affirmative for the next question(s) to become testable.

Therefore, Thai university students who, during their childhood, had studied both the Thai and the Roman alphabet either simultaneously (private schools) or successively (state schools), were asked to select their six most preferred letters out of a single visual random presentation of all Thai consonants (see below for the rationale for this restriction) or all Roman capitals.

Concerning the first issue—is the NLE specific to Western subjects and/or languages?—the following prediction can be made. If the affective NL-preference is not restricted to Western subjects, languages or alphabets, then a significant Thai NL-preference should be found. It should be noted, however, that the existence of a Thai NLE was a most unlikely still basically relevant phenomenon. Indeed, for linguistic and cultural reasons a significant Thai NLE is not as straightforward as it might seem from Nuttin's (1987) demonstration of the cross-national generality of the NLE. At the linguistic level, although the Thai alphabet consists of three types of characters—vowels, accents and consonants—only the last type can be presented in isolation. Not only must Thai vowels always be accompanied by a consonant to be meaningful, but the same stimulus can also denote different vowels depending on whether the vowel is written above, under, to the left or to the right of a consonant or another vowel—and some vowels are even not written at all. Therefore, only consonants could be used as stimuli. In addition, the pronunciation of Thai consonants is also influenced by the accompanying vowels and/or accents. As a consequence, our Thai subjects are seriously limited in their possibilities of expressing a NL-preference. As a matter of fact, only the written consonant elements of the own name compound stimulus can be visually manipulated in an isolated stimulus presentation. Therefore, from a mere ownership point of view a significant NL-preference is only to be expected if the NLE basically bears, as originally claimed by Nuttin (1985), upon isolated stimulus elements (written letters) of a self-attribute (one's own name). On a more general cultural level, Thai naming and addressing styles are different from Western habits. Indeed, Thai family names are seldom used while a polite style of addressing people requires the use of the first name.

As to the second issue, if the mastery pleasure hypothesis is correct, then we should obtain a Thai NLE in both groups and a Roman NLE in the private school group. Indeed, for subjects having studied the Thai and the Roman alphabet simultaneously (which is the case in the private school group), the same affective consequences of mastering the socially strongly reinforced writing skills should be found in both alphabets. In the state school group, where subjects already possessed a considerable writing experience long before the acquisition of the Roman alphabet, no Roman NLE should be found. If, on the contrary, the mere ownership hypothesis is correct, then significant and intercorrelated NLEs should be found in both alpha-

bets. As already explained in the general introduction of this paper, an overall difference between the Thai and the Roman NLE could be predicted by both hypotheses.

If our results replicate the Bulgarian Hoorens and Todorova (1988) data, contradicting the mastery pleasure hypothesis but showing a stronger NLE in the subjects 'mother' alphabet (Thai) than in a second alphabet (Roman), then the double Thai educational system allows an indirect test of the third question. Indeed, the mitigated mastery pleasure hypothesis only predicts a differential strength of the NLE in one's 'mother' and second alphabet if the second alphabet is mastered at least some years after the 'mother' alphabet. Therefore, if this hypothesis is correct, the Roman NLE should only be weaker than the Thai NLE in subjects having received a state school education. Subjects having attended private schools should not show a differential NLE for the simple reason that they have studied both alphabets simultaneously. If however the weaker NLE in a second alphabet is to be explained by the circumstance that the own name written in a foreign language does not become such an integrated part of the self — as the mere ownership hypothesis would predict — then it should not depend on the subjects' state versus private primary education. As a matter of fact, irrespective of the presence of a time interval between the study of two alphabets, the more 'own' 'mother' alphabet should show a stronger NLE than the second and less 'own' but 'foreign' language.

Method

Subjects

Two hundred and twenty-three Thai students of Thammasart University and Silpakorn University (Bangkok, Thailand) participated in the study. On the basis of a post-experimental questionnaire, subjects were divided in a 'private school group' ($N = 149$) and a 'state school group' ($N = 74$).

Materials

For each subject, a booklet was prepared containing the instructions, the letter stimuli and a post-experimental questionnaire. Four different versions were prepared, manipulating task orders (Thai/Roman versus Roman/Thai) and using two random presentations of each alphabet.

The letter stimuli for the Thai letter choice task were presented in a visual random presentation of all 44 Thai consonants. In contrast, the Roman letter stimuli were presented as a single random presentation of all 26 capitals. The inclusion of all Roman vowels was decided in order to preserve comparability with previous studies on the NLE.

Procedure

The subjects were invited, during a regular class hour, to encircle as spontaneously as possible their six most preferred letters out of each stimulus page. Instructions were a shortened Thai translation of the instructions used by Nuttin (1987). It was stressed that subjects should try to respond without thinking, as we were not interested

in why they chose certain letters, but only in which choices they made. Upon turning the instruction page, subjects were confronted with the random presentation of either the 44 Thai consonants or the full Roman alphabet. As soon as they had chosen their six most preferred letters, subjects were instructed to repeat the same task on the next page with the letters of the other alphabet. Finally, on the post-experimental questionnaire they filled out their full name (both in Thai and Roman letters) and the name of their primary school.

Results

Subjects were categorized by the fourth author, who is familiar with the Thai educational system, as belonging to either the 'private school' group or the 'state school' group. Letter preference data were analysed as in Nuttin's (1987) cross-lingual study. In order to compare within subjects the NLE over alphabets, Pearson correlations were calculated between the number of NLs chosen in both choice tasks by the subjects of each condition. In addition, an ANOVA was performed on the NL-choice data with the alphabets (Thai/Roman), the educational system (private/state) and the task order (first Thai/first Roman) as independent variables. However, due to the different number of letters in the Thai versus the Roman presentation (44, resp. 26) and Thai versus Roman names (in Thai only consonants were counted), the chance expectation of NL-choices was not comparable over alphabets. Therefore, for each subject a ratio was calculated of the number of NL-choices to the corresponding chance expectation number². This measure was used as the dependent variable in the ANOVA. Separate ANOVAs were performed for the full, first and family name letter choices.

The results of the randomization tests are summarized in Table 2. For the Thai alphabet, the total subject group showed a significant NLE at all levels of analysis. The same pattern of results was obtained in the private school group. In the state school group we found significant NLEs except for family name letters, where it was marginally significant. For the Roman alphabet, the total subject group yielded a significant effect for the full and the first name. The private school group roughly showed the same picture, except for the fact that a significant family name letter

² The expected number of NL-choices was calculated using the following formula:

$$\frac{(\text{number of letter choices, i.e. } 6) \times (\text{number of different NLs})}{\text{number of letters occurring in at least one name}}$$

The denominator of this formula is different from the one used by Hoorens and Todorova (1988), who took the number of letters in the full alphabet (30 in Cyrillic and 26 in Roman). The decision to only use the number of letters which occurred in at least one name was based on the observation that a large number of low-frequent Thai letters never occurred as a NL. As low-frequent letters are less preferred than high-frequent letters (Alluisi and Adams, 1962), it can be assumed that overall these letters — which were at the same time low-frequent and 'not-own' — had less chance of being chosen among the six most preferred letters of the Thai alphabet than the other letters which were more frequent and could be NLs as well as NNLs. Within the Roman alphabet, such a confounding of the letter frequency and the own-not own variable was absent as relatively more letters—including low-frequent letters—occurred in subjects' names. Therefore, using the total number of Thai letters could inflate the Thai NL-choice/expected NL-choices ratio as compared to the ratio obtained for the Roman data. Because a direct comparison of the NLE in both alphabets was crucial for our studies, it seemed imperative to avoid this problem. We would like to stress the point that the potential artefact discussed above could not affect the randomization tests which showed the existence of the Thai and the Roman NLE, as in these analyses each letter served as its own control. The artefact to be avoided only bore upon the direct comparison of the NLE in both alphabets.

Table 2. Mean percentage by which own name letters (NL) and not-own name letters (NNL) are chosen among the six most preferred letters of the Thai and the Roman alphabet by subjects with a primary education in a private school (simultaneous acquisition) versus a state school (no simultaneous acquisition) (data from study 3)

Analysis	Alphabet					
	NL	Thai NNL	<i>p</i> *	NL	Roman NNL	<i>p</i> *
Private school						
Name (n.)	21.96	12.31	0.001	24.99	19.59	0.04
First n.	23.38	13.74	0.002	27.66	19.33	0.01
Family n.	20.63	12.31	0.02	25.18	19.59	0.001
State school						
Name (n.)	24.69	13.21	0.001	29.96	24.78	0.141
First n.	36.05	14.62	0.001	40.44	24.78	0.005
Family n.	18.08	13.21	0.08	21.08	24.85	0.887

**p*-Values associated with the NL–NNL differences, obtained with a randomization test for matched pairs, as described by Nuttin (1987).

effect was found. Finally, in the state school group (at least) a (marginally) significant NL–NNL choice difference appeared only for first name letters.

For both subject groups, the number of NL-choices in both alphabets was significantly correlated (depending on the analysis, $r = 0.20$ to 0.43 ; $p < 0.025$ to < 0.0001). Irrespective of their primary school education, subjects who chose a relatively high, resp. low number of NLs in Thai also selected a high, resp. low number of NLs out of the Roman alphabet.

The ANOVAs showed a significant main effect of alphabets for the name letter choices of the full name ($F(1,219) = 50.32$; $p < 0.0001$), the first name ($F(1,219) = 16.41$; $p < 0.0001$) and the family name ($F(1,219) = 17.72$; $p < 0.0001$). As shown by Figure 2, in each case more NLs were chosen in the Thai than in the Roman letter preference task. In addition, first name letter choices showed a significant alphabets \times task order interaction ($F(1,219) = 7.93$; $p < 0.0055$). Significantly more NLs were chosen in the Thai than in the Roman letter preference task by subjects first presented with the Thai letter stimuli ($F(1,219) = 23.41$; $p < 0.0001$) but not by subjects first presented with the Roman alphabet. No main effect of educational systems, nor an interaction of this factor with any other variable did reach significance.

Discussion

At this point, the conclusion seems reasonable that the NLE is a robust universal phenomenon which can be demonstrated in all cultures where own written names are used, and where the letters of these names, even when restricted to the consonants, can unequivocally be visually presented as isolated stimulus elements. Indeed, a significant NL-preference was obtained in Thai university students, who belong to a clearly different culture, speak a very different language and use a completely different alphabet as compared to the thus far studied samples for whom a NLE was found. As a matter of fact, the demonstration of a NLE for family and/or first name letters in an Asian population with a South East Asian (consonant) alpha-

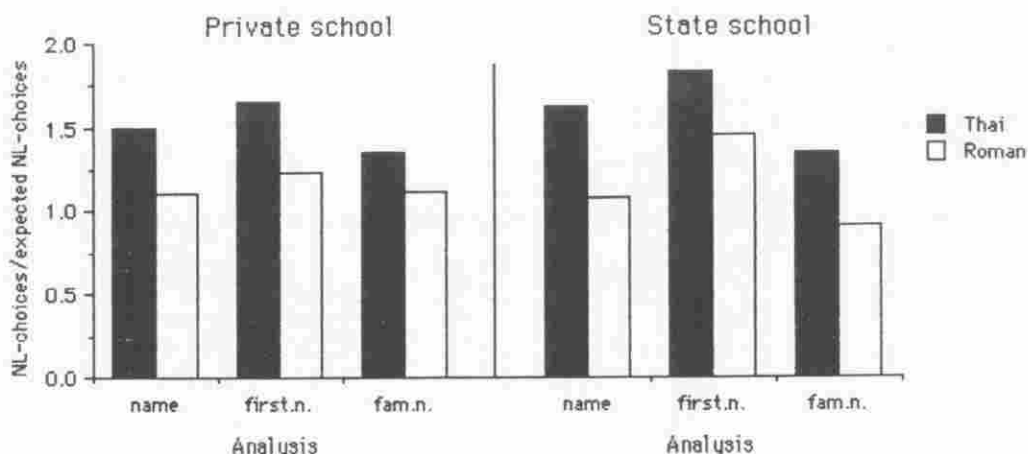


Figure 2. Mean ratio of the number of effectively chosen own name letters (NLs) to the chance expectation of NL-choices in the Thai and the Roman alphabet by subjects with a primary education in a private school (simultaneous acquisition) versus a state school (no simultaneous acquisition) (data from study 3)

bet contradicts all hypotheses which assume a cultural and/or linguistic specificity of the phenomenon. The fact that the Thai NLE was especially strong for the first name letters, whereas family name letters were preferred to a lesser degree, may be understood in the light of the culturally determined Thai avoidance of family name usage (we will comment on the theoretical relevance of this observation further in this paper).

The results of Hoorens and Todorova (1988) related to the Roman and Cyrillic alphabet are clearly replicated. Although NLs were more often preferred in the subjects' 'mother' alphabet as compared to their second alphabet, a significant NLE in the second (Roman) alphabet was obtained. Both the Hoorens and Todorova (1988) data and the present results contradict the mastery pleasure hypothesis, which predicts a NLE in the subjects' 'mother' alphabet only.

If the temporal primacy of mastering NLs has some importance as a co-determinant of the NLE—as the mitigated mastery pleasure hypothesis predicts—then a weaker NLE in a second alphabet as compared to the subjects' 'mother' alphabet should only occur if there exists a considerable time interval between the acquisition of both writing systems. This condition was fulfilled in the Thai state school group. If both alphabets are learned simultaneously, as in the private school group, no between-alphabet differences in the strength of the NLE should be found. Contrary to this predicted alphabet \times educational systems interaction, the NLE was stronger in the 'mother' than in the second alphabet and this difference occurred irrespective of the subjects' private versus state school education. Consequently, mastery pleasure is an unlikely candidate as a determinant or even as a co-determinant of NL-preferences.

Finally, Nuttin's mere ownership hypothesis is supported by the data. Replicating Hoorens and Todorova (1988), significant and intercorrelated NLEs were obtained in both the subjects' 'mother' alphabet and in their second alphabet. As interindividual differences in self-attachment or in the affective consequences of mere ownership

can be expected to manifest themselves over measurements, these results are in line with Nuttin's explanation of the NLE.

Although the results of study 3 seem to offer convincing evidence, its design did not allow a stringent check of the validity of the primary school variable as an operationalization of the interval between the acquisition of the 'mother' and the second alphabet. It is possible, indeed, that children attending state schools learn to write the Roman alphabet outside the school context. In this case the assumed difference between private and state school subjects would of course become irrelevant. Even more important is the already mentioned lack of control on possible confounding variables which is inherent to quasi-experimental designs. Therefore, we decided to run a fourth study focusing on the mitigated mastery pleasure hypothesis, using a combination of a cross-sectional and a cross-alphabetical research strategy.

STUDY 4

In order to further test the mitigated mastery pleasure hypothesis, we asked Thai children of the second, fourth and sixth grade of a state school and a private school to select their six most preferred letters out of a visual random presentation of all Thai consonants and all Roman capitals. Experiment 3 clearly demonstrated a NLE in Thai university students and in the Thai alphabet for ex-pupils from both private and state school subjects. Therefore, a significant Thai NLE is expected in children from both educational systems. Moreover, based on the results of the studies 1 and 2, this effect is expected to occur at all grade levels.

If the mastery pleasure hypothesis is correct—which becomes unlikely, considering the results of the three previous studies—then a Roman NLE should only be obtained in the private school subjects. Moreover, a decreasing trend should occur in the Thai NLE for both private and state schools subjects and in the Roman NLE for the private school subjects (i.e. without time interval for language acquisition). If only the mitigated mastery pleasure hypothesis is correct, then a NLE should occur in both alphabets for both school groups. However, as state school subjects only become acquainted with the Roman alphabet between the fourth and the sixth grade, for this group a significant Roman NLE is expected only in sixth graders. As there exists a considerable time interval between the study of the 'mother' alphabet (Thai) and the second alphabet (Roman), for state school children this Roman NLE should be weaker than the Thai NLE. In private school subjects no important time interval exists between the study of both alphabets. Hence, no inter-alphabet differences in the strength of the NLE should occur. Finally, there is no compelling reason to predict a decreasing NLE over primary school grades. Indeed, although the unmodified mastery pleasure hypothesis predicts a decreasing NLE over primary school grades, if we are to accept a multiple determination of the phenomenon then a decreasing trend due to a mastery pleasure process could indeed be obscured by other factors causing the opposite development.

The mere ownership hypothesis predicts a significant NLE in both alphabets and in both subject groups. No decreasing trend over grade levels is expected. Again, in the state school group only sixth graders should show a Roman NLE, as younger subjects are not assumed to be familiar with the Roman alphabet. In addition, if the NLE shows a differential strength in Thai versus in Roman letters, then this

difference should not depend on grade levels or on educational systems. Finally, at all grade levels and in both subject groups the Roman and the Thai NLE should be positively correlated (as least in these cases where a significant Roman NLE can be expected).

None of the hypotheses described above predicts a significant Roman NLE in second and fourth graders of the state school group, the reason being that these subjects are not assumed to be familiar with the Roman alphabet. If a significant Roman NLE is found in these two subject groups, it would mean that the school variable had little validity as a manipulation of the time interval between the acquisition of the Thai and the Roman alphabet. If, on the other hand, for second and fourth graders a significant Roman NLE is found in the private school condition but not in the state school condition, and if state school sixth graders do show a Roman NLE, then we can take this pattern of results as an indication of the validity of our manipulation. Of course, if neither the private nor the state school subjects yield a Roman NLE, no relevant conclusions can be drawn. Considering the data of study 3, however, we do not expect such a pattern of results. Moreover, if the data would suggest that the NLE is strictly limited to the 'mother' alphabet, the problem of the time interval between the acquisition of the 'mother' and a second alphabet becomes irrelevant.

Method

Subjects

Three hundred Thai second, fourth and sixth graders of a private and a state school participated in the study. In each grade-school group 25 subjects were administered one of two letter preference task orders. Subjects of the same condition were tested collectively by the same female Thai experimenter and in the presence of their usual class teacher. Special care was taken to eliminate any communication between subjects and subject groups during the experimental period.

Materials and Procedure

Each subject was given a booklet, containing the letter stimuli in one of two different choice task orders (Thai/Roman versus Roman/Thai) and a post-experimental questionnaire (for all other details of the stimuli see study 3).

The data were gathered during regular class hours. The instructions were a Thai translation of the instructions used for the studies 1 and 2. However, the example with the Japanese katakana characters was omitted. After selecting their six most preferred Thai and Roman letters, the subjects wrote—on the last page of the booklet— their full name (both in Thai and Roman letters) and the age at which they had become familiar with the Thai and the Roman alphabet. For subjects not yet familiar with the Roman alphabet, the Roman name was filled out by the fourth author, who is a native Thai.

Table 3. Mean differences between the percentages by which own name letters and not-own name letters are chosen among the six most preferred letters of the Thai and the Roman alphabet by Thai children from different grade levels of a private school (simultaneous acquisition) and a state school (no simultaneous acquisition) (positive values denote a higher percentage for own name letter choices than for not-own name letter choices) (data from study 4)

Grade level	2	Alphabet				6
		Thai 4	6	2	Roman 4	
Private school						
Name (n.)	7.60*	15.10†	10.26†	-3.37	-1.19	4.22‡
First n.	11.05*	32.10†	18.77†	-2.72	10.63‡	11.48*
Family n.	8.63‡	4.27*	4.90‡	-3.55	-4.64	-1.03
State school						
Name (n.)	7.95†	15.81†	13.09†	0.35	3.12	12.89†
First n.	13.62†	21.04†	25.52†	1.26	3.86	21.72†
Family n.	5.16	7.14*	6.66*	-0.11	2.66	5.37

* Significant at $p < 0.05$ level.

† $p < 0.005$.

‡ Marginally significant ($p < 0.10$).

Results

NL-choice data were essentially analysed as in study 3. In order to compare the NLE over alphabets, grade levels and educational systems, Pearson correlations were calculated between the number of NLs chosen in both choice tasks by subjects of each grade level-school condition. In addition, an ANOVA was performed on the NL-choice data with alphabets (Thai/Roman), educational systems (private/state), task orders (first Thai/first Roman) and grade levels (second/fourth/sixth) as independent variables. Again, the dependent variable was the ratio of the number of effectively chosen NLs to the corresponding chance expectation number (for the calculation of the latter variable see study 3).

The results of the randomization tests are summarized in Table 3. Within the Thai alphabet, from the second grade on some analyses yield a significant NL-NNL difference. The NLE was more pronounced for first name letters than for family name letters. While significant NL-NNL differences were obtained for first name letters in each grade-school group, family name letters only showed significant NL-NNL differences in three groups. In the Roman alphabet, second graders yielded no (even marginally) significant NL-NNL differences. In private school fourth graders, a marginal significant NL-NNL difference was observed for first name letters. Sixth graders of both private and state schools showed a significant NL-NNL difference for first name letters. Private school children also yielded a marginal difference for the letters of the full name. In state school sixth graders, this difference became significant.

The number of NL-choices in both alphabets were significantly correlated for the sixth graders' first name letter choices ($r = 0.34$ for the private school group and $r = 0.31$ for the state school group; $p < 0.05$). In state school sixth graders, full name letter choices in both alphabets were significantly correlated ($r = 0.38$, $p < 0.01$). Fourth graders of both groups and second graders of the private school showed

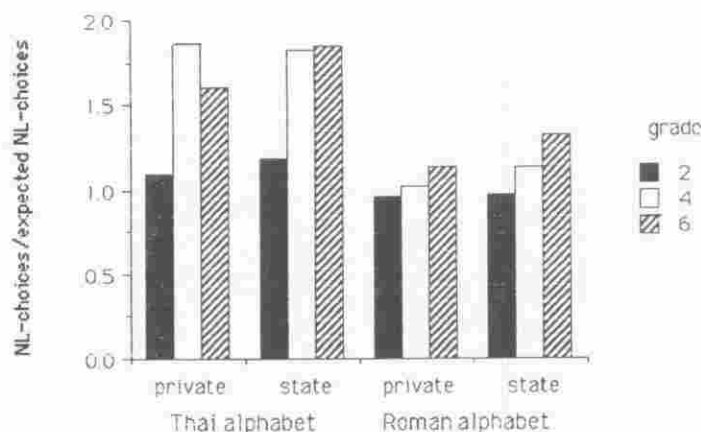


Figure 3. Mean ratio of the number of effectively chosen own name letters (NLs) to the chance expectation of NL-choices in the Thai and the Roman alphabet by children from different grades of a private school (simultaneous acquisition) versus a state school (no simultaneous acquisition) (data from study 4)

no significant correlations. A significant correlation for state school second graders ($r = 0.29$; $p < 0.04$) has no theoretical relevance in the present context as this subject group showed no significant Roman NLE.

The ANOVA on the ratio of the number of effectively chosen NLs to the corresponding chance expectation number yielded significant main effects of grade levels and of alphabets, and a significant grade level \times alphabet interaction (see Figure 3). More NLs were chosen in the Thai alphabet than in the Roman alphabet ($F(1,288) = 60.30$; $p < 0.0001$). Separate analyses showed that this effect was mainly situated in first name letters ($F(1,288) = 41.82$; $p < 0.0001$). In family name letters it was only marginally significant ($F(1,288) = 3.74$; $p < 0.06$).

The NLE increased with grade levels ($F(2,288) = 16.97$; $p < 0.0001$), following both a linear ($F(1,288) = 26.55$; $p < 0.0001$) and a quadratic trend ($F(1,288) = 7.38$; $p < 0.01$). It occurred in first name letters ($F(2,288) = 16.35$; $p < 0.0001$; linear trend $F(1,288) = 28.75$; $p < 0.0001$; quadratic trend $F(1,288) = 3.95$; $p < 0.05$) as well as in family name letters ($F(2,288) = 5.20$; $p < 0.01$; linear trend $F(1,288) = 7.39$; $p < 0.01$; marginal quadratic trend $F(1,288) = 3.01$; $p < 0.09$).

The letters of the full and the first name showed a significant grade levels \times alphabet interaction ($F(2,288) = 7.16$; $p < 0.001$; resp. $F(2,288) = 7.99$; $p < 0.0005$). The grade level effect in the Thai alphabet was mainly due to a difference between the second and the fourth grade, whereas for the Roman alphabet the largest difference occurred between the fourth and the sixth grade. Within the Thai consonantal alphabet Turkey's studentized range tests indeed showed a significant difference (0.05 level) between NL-choices in the second grade on the one hand and in the fourth and the sixth grade on the other hand, both for letters of the full and the first name. There were no significant differences between the fourth and the sixth grade. Within the Roman alphabet, there were no differences between the second and the fourth grade, but both groups differed significantly from the sixth grade. Family name letters did not yield any significant differences. The educational system did not significantly interact with the grade levels or the alphabets. The presentation order of

the alphabets only showed a marginally significant interaction with grade levels ($F(2,288) = 2.62$; $p < 0.08$) and with the alphabets ($F(1,288) = 3.63$; $p < 0.06$). No other main or interaction effects were obtained.

Discussion

Study 4 was essentially designed for two purposes. Its main goal was to test the mitigated mastery pleasure hypothesis by comparing the Thai versus the Roman NLE in 'bi-alphabetical' subjects of different ages, having acquired both alphabets simultaneously versus with a considerable time interval. The last variable was operationalized by using children of different school systems—a private school (simultaneous) versus a state school (interval)—as subjects. At the same time, however, study 4 was designed to allow a more stringent test of the validity of the educational systems variable as a manipulation of the time interval between the study of the 'mother' alphabet (Thai) and the 'second' alphabet (Roman).

Of course our results could only yield an answer to the questions under study if at least in the 'mother' alphabet a significant preference for NLs above>NNLs emerged. Both in the private and in the state school, from the second grade on subjects did indeed show a preference for NLs above>NNLs. The NLE was especially strong for first name letters, whereas family name letters were preferred to a lesser degree. These results confirm the data from studies 3, showing a NLE—especially for first name letters—in Thai subjects, and from the studies 1 and 2, showing a NLE in children of different primary school grades.

In order to check whether the educational systems variable yielded an adequate manipulation of the time interval between the study of both alphabets, we compared the Roman NLE in private school second and fourth graders versus in state school second and fourth graders. The latter groups should not show any trace of a NLE—as they were assumed to be unfamiliar with the Roman alphabet, they could not be expected to affectively discriminate between NLs and>NNLs—whereas subjects belonging to the former groups were expected to show a preference for NLs above>NNLs. The results were in line with this expectation: there was no trace of a Roman NLE in state school second and fourth graders. In contrast, private school subjects started to show a (be it limited) tendency to prefer Roman NLs from the fourth grade on. Considering the relatively weak Thai NLE in the youngest subject groups, the absence of a Roman NLE in private school second graders was not surprising. Study 3 and Hoorens and Todorova (1988) indeed showed a weaker NLE in a second alphabet as compared to the effect in one's 'mother' alphabet. Therefore, a clear Roman NLE could hardly be expected since private school second graders showed an already weak Thai NLE. This weak NLE in the children's 'mother' alphabet is again in line with the results of studies 1 and 2, where the youngest subjects also showed a weaker NLE than the older subjects.

The mastery pleasure hypothesis not only predicts the opposite of a weak NLE in younger subjects (fresh master alphabeticus), but even a decreasing Thai NLE over primary school grades. In addition, only private school subjects should show a Roman NLE since only these subjects acquired the Roman and the Thai alphabet simultaneously. State school subjects should not show a significant preference for Roman NLs, since they only got acquainted with their second alphabet some years after mastering their 'mother' alphabet. Our results showed exactly the opposite.

On the one hand, fourth and sixth graders selected more NLs among their six most preferred Thai consonants than second graders. On the other hand, state school sixth graders did show a Roman NLE. It is clear, then, that our results again contradict the mastery pleasure hypothesis. As such, they are in line with the data from the studies 1, 2 and 3 and from Hoorens and Todorova (1988). The increase of the NLE over primary school grades was even more pronounced than in the previous studies.

The mitigated mastery pleasure hypothesis predicts a Roman NLE in the state school group as well as in the private school group (of course, in the state school group only sixth graders could show a NL-preference, as they were the only state school children who were familiar with the Roman alphabet). In state school sixth graders, however, the Roman NLE should be weaker than the Thai NLE, whereas second, fourth and sixth graders of the private school should not show a differentially strong NLE in both alphabets. Contrary to this expectation, we did not find a significant educational system \times alphabet interaction. Independently from their type of primary school, subjects chose more NLs in the Thai consonantal alphabet than in the Roman alphabet. It is clear, then, that the mitigated mastery pleasure hypothesis is not supported.

Finally, the mere ownership hypothesis predicts a Roman NLE at all grade levels of the private school and in the sixth grade of the state school. Moreover, the NLEs in the two alphabets should be positively correlated. If, due to a lack of relevant self-experiences mediated by the subjects' second alphabet the NLE is stronger in their 'mother' alphabet than in their second alphabet, then there is no reason to expect an interaction of the alphabet variable with the educational system. The results partially fulfil these expectations. We indeed found a NLE in the Roman as well as in the Thai alphabet. However, in some groups where a significant NLE was expected, the effect was rather weak (see, for instance, the Roman NLE in private school fourth graders). Only in sixth graders were the Thai and the Roman NLE clearly correlated (apart from the already discussed correlation in state school second graders). This cannot be considered too surprising, however, as only in sixth graders strong Roman NLEs did emerge. Finally, there was no educational system \times alphabet interaction. Therefore, the differential strength of the NLE in a 'mother' and a second alphabet did not seem to depend on the occurrence of a time interval between the study of the two alphabets. It can be concluded, then, that only the mere ownership hypothesis receives empirical support as an explanation for the NLE.

GENERAL DISCUSSION AND CONCLUSION

In four studies the hypothesis was tested that mastery pleasure is the main determinant of, resp. does significantly contribute to, the preference for NLs above>NNLs (the name letter effect or NLE). The mastery pleasure hypothesis states that NLs are preferred because they were once the very first items one learned to read and write. The mitigated mastery pleasure hypothesis states that primacy of mastery of NLs does contribute to the genesis of the NLE, without being its principal determinant. Both explanations of the NLE were contrasted with Nuttin's mere ownership hypothesis, which states that NLs are preferred because they are the constitutive elements of an important self-attribute (the own name). Merely being an isolated element

of an own complex object is indeed assumed to be a sufficient condition for the enhancement of the elements' attractiveness.

Before summarizing the implications of the results for these hypotheses, we would like to point to the remarkable steadiness by which the NLE was replicated in all four studies. It is clear that the observation of a significant NLE in at least the subjects' own or 'mother' alphabet was a *conditio sine qua non* for the evaluation of the hypotheses mentioned above. Indeed, if no NLE was obtained it would be impossible to compare the phenomenon in different circumstances. The fact that the prerequisite of demonstrating a significant NLE was fulfilled in all four studies did not only bestow our data with theoretical relevance, but it also underlined the generality and robustness of the NLE itself. As such, the results do provide a substantial extension of Nuttin (1985, 1987) and Hoorens and Todorova (1988). Replicating these studies, we found a significant NLE in letter preference tasks administered by different experimenters to subjects of different ages (from second graders to university students), living in different countries (Belgium, Hungary, Thailand), and with different mother languages (Dutch, Hungarian, Thai). In addition, however, the present studies were run with subjects from clearly different cultural spheres, yielding the first demonstration of a NLE in an Eastern culture. Moreover, the subjects' mother languages belong to different language families (Indo-European, resp. Finno-Ugrian, resp. Sino-Tibetan). The Thai language even uses a completely different alphabet as compared to Dutch and Hungarian, implying specific orthographical principles which only allow the presentation of consonantal letters as isolated stimuli. Even in these challenging circumstances a significant name letter effect was still obtained.

The results of all four studies run counter to two predictions derived from the mastery pleasure hypothesis. This explanation predicts, firstly, a decreasing NLE over primary school years and, secondly, an exclusiveness of the NLE to one's 'mother' alphabet—at least when there exists a time interval between the acquisition of this alphabet and the acquisition of a second alphabet. In contrast with the first prediction, the NLE did not decrease over primary school grades (studies 1, 2 and 4, on Flemish, Hungarian and Thai children of three different grades, respectively). We even observed a clear increase in its strength, and this increase was successfully replicated in all three cross-sectional studies. Contradicting the second prediction, the NLE was not restricted to the very first alphabet subjects learned to master. Thai students (study 3) and primary school children (study 4) preferred their NLEs significantly more often than NLEs within the Roman alphabet as well as within the Thai consonants. Therefore, the mastery pleasure hypothesis can be rejected as an explanation for the NLE.

The results also contradict a mitigated mastery pleasure hypothesis. This hypothesis states that mastery pleasure does contribute to the genesis of the NLE, while not being its principal determinant. In two studies we tested the prediction, derived from this explanation, that the NLE in one's 'mother' alphabet should be stronger than the NLE in one's second alphabet only when there is a considerable time interval between the acquisition of both alphabets. Therefore, the Thai and the Roman NLE were compared in Thai children (study 4) and Thai university students (study 3) who (had) received their primary school education in a private school (where the Thai and the Roman alphabet are taught simultaneously) versus a state school (where the Roman alphabet is taught some years after the acquisition of the Thai alphabet). However, the presence versus the absence of a time interval between the acquisition

of the subjects' 'mother' (Thai) and second (Roman) alphabet did not significantly affect the strength of the NLE in the second alphabet. Consequently, it seems plausible to also reject the mitigated mastery pleasure hypothesis.

In contrast, the results of studies 3 and 4 offer converging empirical support for the mere ownership hypothesis. Firstly, at least in the oldest subject groups, the NLEs of the 'mother' and the second alphabet were positively correlated. If NLEs grow more attractive simply because they occur in a self-attribute, then the affective consequences of mere ownership should indeed manifest themselves over measurements—for instance, over different alphabets. Secondly, the NLE seems to be linked to culturally determined naming and addressing habits. In both studies 3 and 4, the NL-preference was stronger for first name letters than for family name letters, and this difference was much more pronounced than in earlier research (see Nuttin, 1987). It seems to us that this observation may be understood in the light of cross-cultural differences. Indeed, Thai social rules dictate the avoidance of family names in social interaction. This habit is so embedded in the Thai society that having a family name only became obligatory in the beginning of the 20th century. It is very well possible, then, that the Thai avoidance of family names and the consequent relatively intense use of first names accentuate a difference which already exists in subjects of other cultures. Taken together, our data suggest that we can maintain Nuttin's mere ownership hypothesis as the most appropriate basis for an explanation of the name letter effect.

We would like to conclude with one further comment. As Nuttin's mere ownership hypothesis predicted a significant NLE under all circumstances studied in this paper, this very prediction of a highly general NLE may have fed the idea that the hypothesis is nothing but an alternative name for the phenomenon, carrying no explanatory value. It should be noted, however, that this is a misleading impression. For instance, ongoing research in collaboration with Dr G. Sedek (University of Warsaw, Poland) aims at the identification of circumstances in which the mere ownership hypothesis does, versus does not, predict the occurrence of a NLE. Although only preliminary results are available thus far, the data seem to confirm that under conditions where the mere ownership hypothesis does not lead to the expectation of a NLE (e.g. because the alphabet under study is experienced as definitely not-own) no NL-preferences are obtained, whereas in other conditions the same subjects do show a significant NLE. It should be clear, then, that rather than simply being an almost tautological extension of the NLE the mere ownership hypothesis and its relationship to the NLE deserve further empirical and theoretical attention.

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