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INTRACULTURAL VARIATION OF SEMANTIC AND EPISODIC EMOTION KNOWLEDGE IN ESTONIAN

Ene Vainik

Institute of the Estonian Language, Tallinn

Abstract. This article compares gender- and age-based differences in the cognitive salience of emotion words elicited in two list tasks displaying the content of semantic and episodic emotion knowledge. The semantic emotion knowledge of women appeared as more accessible and different from their episodic knowledge; the difference in the cognitive salience of basic and non-basic emotion terms was higher. As for the age-related variation, the maximum difference between the basic term salience in the semantic and episodic emotion knowledge was revealed in the youngest group (age 14–26), whereas the middle-aged group (age 29–41) displayed the highest similarity.

Keywords: emotion terms, cognitive salience, age and gender, semantic and episodic emotion knowledge

1. Introduction

A language community is a heterogeneous company including anybody from babies to the aged, who are united by the language they use to communicate. How the availability of emotion terms as part of semantic and episodic emotion knowledge might differ for the members of a heterogeneous language community is the topic of this article.

Considerable attention has been paid to examining cross-cultural and cross-linguistic variations of emotion vocabulary and emotion concepts. These efforts have been carried out by researchers working in the field of linguistics (e.g. Wierzbicka 1999), psychology (Hupka, Lenton, and Hutchinson 1999, Scherer and Wallbott 1994) as well as anthropology (Smith 1995). The intralinguistic or intracultural variation of emotion vocabulary and emotion concepts, however, has received less attention. Such variation within just one language or culture can

result from dialectal differences, gender and age, education and field of activity, and personality traits of the speakers of the language or carriers of the culture.[1]

The present article focuses on the intracultural differences brought into emotion vocabulary by age and gender. Up to now the topic seems to have elicited less scholarly interest than cross-cultural differences. However, the role of gender has been discussed in the expression of emotions, verbal expression included (Brody and Hall 2000); emotion concepts as a function of gender (Fischer 1995); and the effects of gender and age on the perception of lexical emotion (Grunwald, Borod, Obler, Erhan, Pick, Welkowitz et al. 1999).

Most of the experimental studies available on cross-cultural differences are based on the recognition of emotion expressions (visual, auditory, or verbal).[2] The recognition and categorisation of emotion expressions, however, are but two aspects of verbal communication on emotions. The other aspect is the production of verbal expressions of emotions. John, (1988) provides norms for students' free associations for certain emotion categories (e.g. happiness, sadness, anxiety, anger), while Doost, Moradi, Taghavi, Yule, and Dalgleish (1999) studied categories associated with emotions by children.

The third approach to the relationship of humans to emotions, and the words used to describe or express them, consists of an effort to find the structure of human emotion knowledge and the way it is actually reflected in active vocabulary, and whether it corresponds to the structure of an actual emotional experience. The ideal method would be a real-time recording of active use of emotion vocabulary, associated with actual events. A less ideal, but more feasible way of finding out the part of mental lexicon practically available for use in case of need (i.e. the necessity to mention an emotion) is to apply the so-called field method[3] and set up a list task asking participants to name the members of a category (e.g. emotions) in the order they happen to come to mind (Sutrop 2001). Even if the results of a list task may look less interesting than recordings of conversations on emotions, they are easily measurable, repeatable and controllable.

The following is a survey of the gender- and age-based differences found by the author in the material collected from a series of list tasks on emotion expressions carried out during 2001, and a discussion of how the results compare with the gender- and age-related tendencies towards emotions described by other researchers.

The first aim of the study is to find out what age- or gender-related differences (if any) might be revealed in the Estonians' responses to list tasks on emotion

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1 Estonian emotion vocabulary has been used as a diagnostic means by Jüri Allik and Anu Realo, who studied the relationship between emotions and personality (Allik and Realo 1997).

2 Most experiments made in the field of psychology are on recognition, concerning either facial affect (Thayer and Johnsen 2000), vocal parameters (Johnson, Emde, Scherer, and Klinnert 1986), or lexical stimuli (Grunwald et al. 1999).

3 The use of the field method has its origin in the studies of colour terms (Berlin and Kay 1969, Davies and Corbett 1994) and it has been widely used to study various lexical material (e.g. Battig and Montague 1969, Brown 1977, 1979).

vocabulary and what kind of variation could be manifested in the structure of emotion knowledge within this one language and culture.

The other aim is to explore whether semantic emotion knowledge corresponds with episodic emotion experience and whether this correspondence could in any way depend on age or gender. The premise is that semantic emotion knowledge is influenced by episodic emotion knowledge (basic knowledge being made up of whatever happens to be the most frequent and impressive in everyday experience) and vice versa – normative semantic emotion knowledge (basic emotion terms) influence the categorisation of personal experience.

2. Participants and method

The list tasks were carried out in the spring of 2001 in Tallinn and suburbs. All participants and the interviewer were native speakers of Estonian. Participants were laypersons with no special skills or training in psychology interviewed in their own habitual environment (schools, working places, homes, clubs for retired people). The selection of participants was not random, but based on criterions of age, gender and education in order to form truly comparable data of intracultural variation.

There were 50 male (average age 36.7, SD = 15.8) and 50 female participants (average age 41.52, SD = 20.9) in the tasks of free listing. Of the task series of seven,[4] the present study compares the results of the following two:

1. Task A: list all words, in the order they come to your mind that you associate with the more general category of 'emotions/feelings'. No time limits were set.
2. Task E: list emotions, in the order they come to your mind that you have experienced in the recent past. It was left up to participants to decide how far back in their personal memories they wanted to trace.

Thus, the participants were given different stimuli: in Task A, it was the abstract name of a category and in Task E, the participants' personal memories of their own emotional experience. The tasks were carried out in the form of oral interviews without informing the participants of the subject beforehand.

Traditionally, the results of a list task are analysed so as to find out the cognitive salience of the more frequent expressions relative to the other members of the list. Cognitive salience is measured by a cognitive salience index, which correlates the occurrence frequency of the word in the list task with its average rank (mean position) in the lists. The formula used here comes from Sutrop (2001: 299–300): $S = F / (N \times mP)$. S is cognitive salience index, F is summary frequency of the occurrence of the word in all lists of the given task, N is total number of participants (lists) and mP is mean position of the word in the lists. The latter is

[4] Task B elicited antonyms to words listed by the subjects in the previous task, Task C required a rank ordering of the words on a principle the subjects were free to choose, Task D called for naming instant emotions, while Task F instructed the subjects to mention positive, negative and neutral emotions (for details see Vainik 2002).

calculated as follows mP = (ΣRj) / F, with Rj being the rank of the word in an individual list. An index calculated by this formula can range from 0–1.00. Index of a word elicited by all informants on the first position results in S = 1, index of a word mentioned just by few participants and in the end of their individual lists approximates zero.

For the purpose of index reliability the recommended number of participants in a list task is 30–50, at least it should never be under 20 (Sutrop 2001). As the series discussed was applied to 100 participants, the resulting material admits analysis in smaller subgroups as well. To investigate gender differences it is sufficient to compare just two equal groups of fifty with similar distribution of age and education. In order to follow the age-related variation of word salience the participants were ranked by age first and then divided into 8 partly overlapping groups. Each group had 30 (±1) members, 2/3 of which coincided with the previous and next groups. Overlapping age groups were used in order to discover the natural rather than predetermined by discrete groups dynamics of index of cognitive salience – a measure of collective not individual behaviour. An individual may easily contribute to different social subgroups, so can his or her results of list task be accounted for many possible group indices.

The words elicited by Task A should be interpretable as the emotion vocabulary in active use with the participants, while the structure of the vocabulary should represent the semantic knowledge of the group of participants within the category 'emotions/feelings'. The cognitively most salient part of this vocabulary (i.e. the most frequent words and words mentioned in the beginning of lists) expresses the basic level of folk emotion knowledge and it can be interpreted as public norm.

The linguistic material yielded by Task E is the emotion vocabulary actually used by the participants in describing their own emotional states. A comparison of the active and the actualised emotion vocabulary should reveal how emotion knowledge is organised on conceptual as well as experiential levels.

3. Results

The cognitive salience index computed across the results of all participants in Task A enabled the researcher to pick out four terms with the highest indices in the emotion category that could be called the basic Estonian emotion terms.[5] These were *viha* 'anger/hate' (S = .155), *armastus* 'love' (S = .146), *kurbus* 'sadness' (S = .108), and *rõõm* 'joy' (S = .104) (for details see Vainik, 2002). As for Task E (requiring description of one's own experience) the only term of comparable salience was *rõõm* 'joy' (S = .116).

[5] In this report all indices apply to lexical units. The cognitive salience indices computed both for lexical units and concepts, as well as a detailed analysis of the differences between the salience of lexical and conceptual units can be found in Vainik (2002).

3.1. Effect of gender

3.1.1. Task A

The results of task A are presented in the first three columns of Appendix A in detail. Separate columns are given to women's (S_w) and men's (S_m) indices, as well as to the general index (S_g). Among the words denoting emotions also some words denoting causally (e.g. nutt 'weeping', naer 'laughter', tears 'pisarad') or associatively related phenomena (päike 'sun', sõbrad 'friends') were mentioned. The words with the highest cognitive salience have been set out in bold print as basic emotion terms.

One of the most obvious gender differences revealed by Task A is the men's lower salience of words *kurbus* 'sadness' (S = .08) and *rõõm* 'joy' (S = .083), which is lower than the women's. Although sadness and joy as concepts certainly belong to the basic level of emotion knowledge with men as well, men's lexical representation of the concepts is divided between nouns and the respective adjectives *kurb* 'sad' (S = .033) and *rõõmus* 'glad/happy' (S = .043). Fig. 1 juxtaposes the salience of men's and women's emotion vocabulary. It demonstrates clearly that on the relevant difference between the basic and nonbasic emotion terms on a popular level is due to the considerably higher salience of words *kurbus* 'sadness' and *rõõm* 'joy' and to a lesser extent *armastus* 'love' with women than with men. For men, it is *viha* 'anger/hate' that is slightly more salient. Other slightly more salient words are *pisarad* 'tears' for women and *raev* 'rage', *nutt* 'weeping/tears', *vihkamine* 'hatred', *hirm* 'fear', and *valu* 'pain' for men.

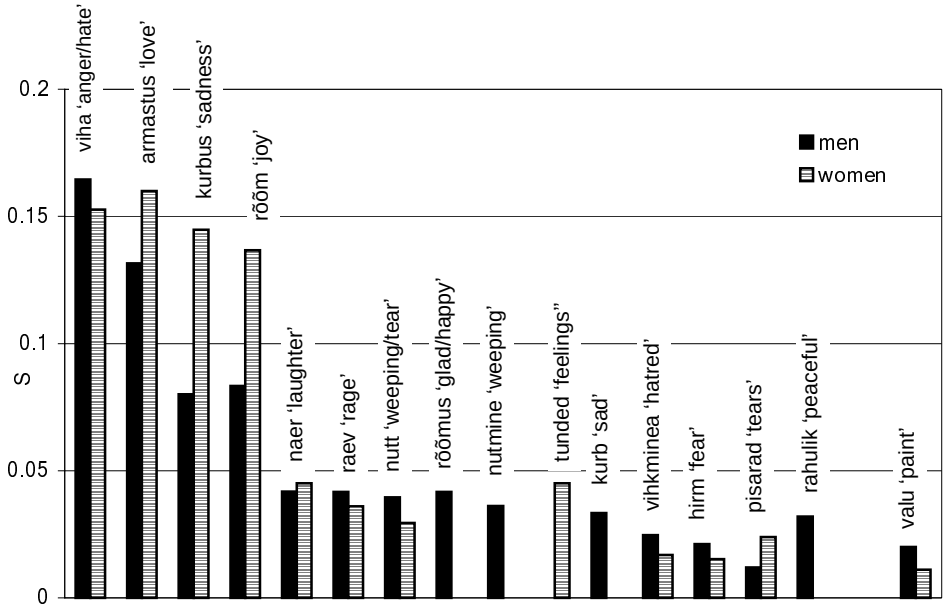


Figure 1. Salience (S) of men's and women's common vocabulary of emotions in task A.

For both men and women the most salient part of emotion vocabulary represents antonym pairs (anger/hate–love, sadness–joy).[6] Lexical antonymy (corresponding to concept contrast on knowledge level) and opposition, which is an important mnemonic device at a list task, may well lie at the base of the semantic structuring of emotion knowledge.

Some of the gender-based differences were morphological: among the words mentioned by men only there were some adjectives (*rõõmus* 'glad/happy', *kurb* 'sad', *rahulik* 'calm') and a verbal noun *nutmine* 'weeping', whereas the words mentioned by women only included some plural nouns (*tunded* 'feelings', *sõbrad* 'friends', *lilled* 'flowers').

From the semantic point of view men preferred keeping within the emotion category, while all women mentioned some objects or issues associated with emotions (*päike* 'sun', *külm* 'cold', *lilled* 'flowers').

3.1.2. Task E

The results of task E are presented in the first three columns of Appendix B in detail. Only one of all basic emotion terms as defined by Task A showed a comparable rate of salience, for men as well as for women. This word was *rõõm* 'joy' (Fig. 2). Note that this time the participants were required not to name emotional states (activating semantic memory), but recall their own emotional experience (activating episodic memory). The higher dispersion of the results and lower index values can be due to the difference of the recalled episodes and the tendency to categorise them with linguistically more specific emotion terms. Although the rest of the basic emotion terms are also present among the words used to categorise one's own experience, the results do not show a correlation.

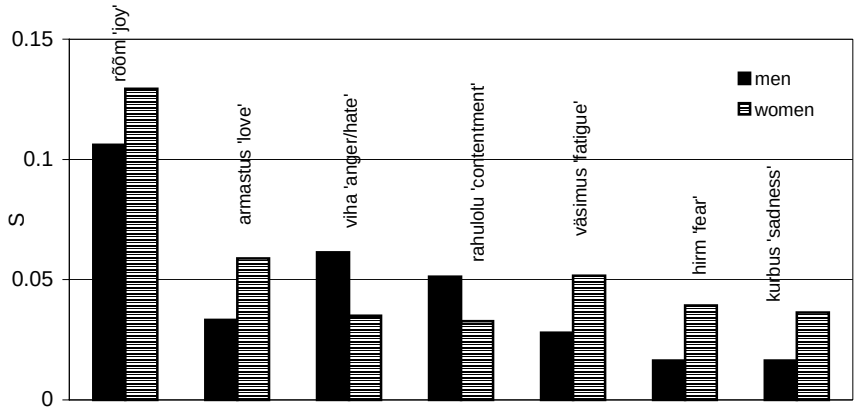


Figure 2. Cognitive salience (S) of men's and women's common vocabulary of emotions in task E.

[6] The same antonym pairs were also named most frequently in the special Task B for antonym naming, another frequent pair was *nutt* 'weeping/tears' – *naer* 'laughter' (see Vainik 2002).

between the frequency or intensity of personal experience and the basic status of a given emotion term. Neither can the result be used to prove whether the availability of the basic emotion terms could in any way facilitate their use in the categorisation of personal experience or not

In comparison to men, women remember more often experiencing *joy, love, fatigue* and *fear*. Men recall more often feeling *anger/hate* and *contentmen*t. Only men reported experiencing *boredom, tension, nervousness, happiness*, or mentioned the words *positiivne* 'positive' and *naermine* 'laughing'. Only women spoke of *surprise, disappointment, apprehension, friendship, offence, curiosity, friendliness, pity,* and *annoyance.*

3.1.3. Comparison of the results of tasks A and E

Both men and women were more verbose in Task A than in Task E. Table 1 characterises the average verbal production of men and women in Tasks A and E. In Task E the difference of men's versus women's verbosity is not really significant (both remain more or less in the limits of short memory 7±2), whereas in Task A women would find 3 words more, on the average, than men.

Fig. 3 illustrates the salience differences ($S_a - S_e$) for the expressions elicited by Tasks A and E. The closer the $S_a - S_e$ is to zero, the closer are the salience readings of the emotion in semantic knowledge and episodic memory. Positive values of $S_a - S_e$ indicate hypercognition of the emotion concepts and negative values refer to hypocognition (Fischer, 1995, p. 458).[7]

The figure reveals that in comparison with personal experience (Task E) both men and women tend to hypercognitise *anger/hate*, *love and sadness*, while women do it more, particularly where *sadness* is concerned. Gender differences are more salient in hypocognition. Men hypocognitise *joy, fatigue* and *nervousness* – although the feelings are experienced – they do not seem to come first in the list task representing men's semantic emotion knowledge. Women, however, hypocognitise *tiredness/fatigue* and *fear*.

Adding up the absolute values of $S_a - S_e$, it turns out that the summary difference between the semantic knowledge and the availability of words to describe personal experience is slightly higher for women (.58) than for men (.52).

Table 1. Average verbal productivity of men vs. women in tasks A and E.

	A	E	difference
men	6.94	4.58	2.36
women	9.94	5.36	4.58
difference	3.00	0.78	

[7] The concepts of hypercognition and hypocognition come from Levy (1984), who explains them as certain normative ways for a culture to control one's feelings either by turning them into a prescriptive obsession rather inadequate to reality (hypercognition) or by establishing that it is better just "not to know" certain emotion concepts (hypocognition).

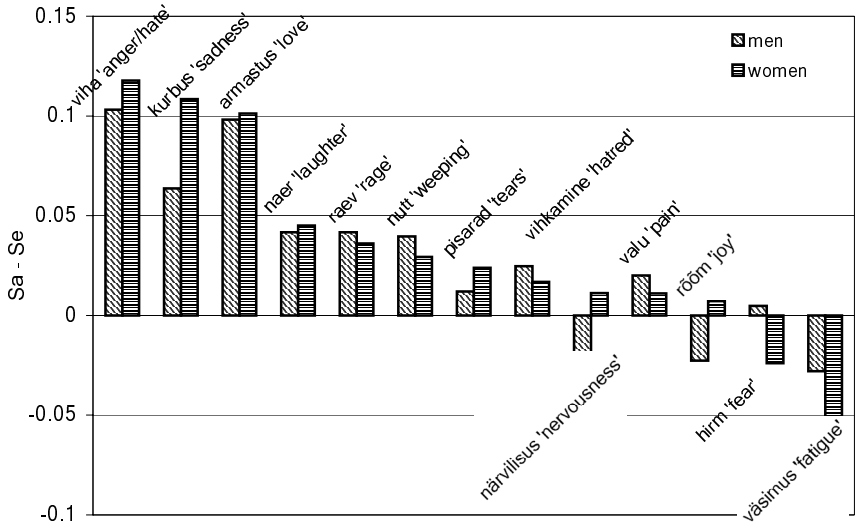


Figure 3. Gender-based differences in the cognitive salience of emotion vocabulary elicited by tasks A and E ($S_a - S_e$).

3.2. Age-related differences

3.2.1. Task A

Indices computed for emotion words recurrent in different age groups for Task A are presented in Appendix A. Some age-related differences are revealed in the semantic knowledge of the participants. As for the basic level of emotion knowledge (*anger/hate, love, joy, sadness*), the age groups seem to differ over what is considered an emotion in the first place. Fig. 4 illustrates the age variation of the salience of basic emotion words: younger groups show high salience for *armastus*

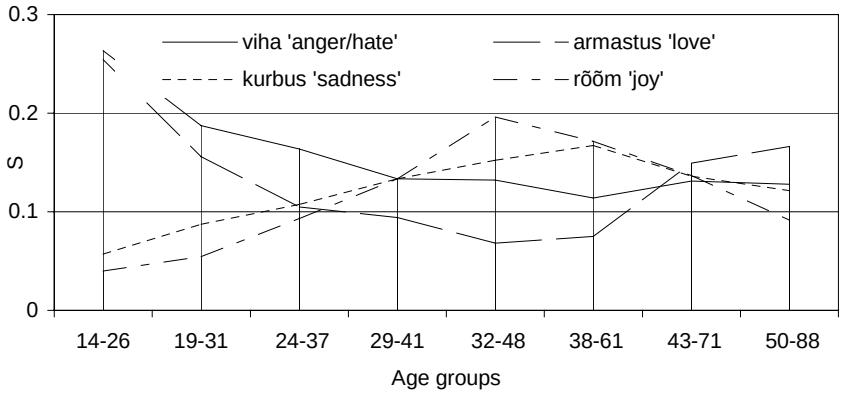


Figure 4. Age variation of the salience of basic emotion terms in task A.

'love' and *viha* 'anger/hate', whereas the cognitive salience of *rõõm* 'joy' and *kurbus* 'sadness' remains under .1. The salience of *armastus* 'love' and *viha* 'anger/hate', however, drops considerably as age advances (i.e., *armastus* 'love' is the lowest in the age group 32–48 and *viha* 'anger/hate' is the least salient in the age group 38–61). In the next two groups (43–71 and 50–88), both experience a salience rise, but *armastus* 'love' has the lead, coming ahead of all other emotion words in the age group 43–71. The salience of *viha* 'anger/hate' surpasses .1 in all age groups. In the age group 29–41 *rõõm* 'joy' and *kurbus* 'sadness' come first in salience. *rõõm* 'joy' is highest in the 32–48 group and *kurbus* 'sadness' is highest in the 38–61 group. In the group aged 43–71, the salience of all basic emotions is more or less similar.

As can be seen in Fig. 4, the salience curves of words change in pairs. *Armastus* 'love' and *viha* 'anger/hate' as antonyms tend to be remembered either simultaneously or close in time. It is possible that the corresponding concepts also lie close in the semantic structure of emotion knowledge as two polar opposites of one and the same phenomenon (e.g. social relations). Those two concepts are particularly salient in younger age groups, for whom the respective knowledge is the most vital. Another pair of words that are often remembered together are *rõõm* 'joy' and *kurbus* 'sadness'. These, too, may designate two polar opposites of one and the same phenomenon in the structure of emotion knowledge (e.g. mood). Those two words seem to occupy a particularly important place in the emotion knowledge structure of middle-aged people (32–61). Lexical antonymy and semantic opposition appear wherever a category contains concepts differing radically on an essential feature. The high cognitive salience of antonym pairs seems indicative of those oppositions being typical of the knowledge structure of the given field. Table 2 represents the mutual correlation coefficients[8] calculated between the emotion vocabulary salience series (comprising all age groups) of Appendix A.

Table 2. Correlations between emotion word saliences across age groups in task A.

Word salience	1	2	3	4	5	6
1. viha 'anger/hate'	–	**.808**	**–.930**	**–.786**	–.417	–.570
2. armastus 'love'		–	**–.850**	**–.831**	**–.813**	**–.750**
3. kurbus 'sadness'			–	**.941**	.608	**.806**
4. rõõm 'joy'				–	**.773**	**.920**
5. naer 'laughter'					–	**.854**
6. nutt 'weeping/tears'						–

Note: The coefficients with a 95% statistical relevance are in bold print.

[8] The coefficients have been computed between the sequences of index values characterising the age-related variation of emotion and salience. The salience of one word should by no means be regarded as a direct function of the salience of another word. Actually the salience changes of all words in question depend on changes on the general age scale. It is just that for different words the changes take different directions.

3.2.2 Task E

The salience indices of emotion vocabulary as computed from the results of Task E by age groups are presented in Appendix B in detail. The only emotion remembered among the first experiences in all age groups was *joy*. Other emotions characteristic of several age groups are *anger/hate*, *love*, *fatigue*, *contentment*, *surprise*, and *sadness.*

There were no age-related fluctuations in the salience of the basic emotion words available for episodic memory except a relatively higher level of *rõõm* 'joy' in the age group 19–31. *Love* was mentioned as part of recent experience by younger people (aged 32–48). The same age group is the starting-point for the rise of *sadness*. *Anger* occurred in the episodic memory of all groups except the most aged. Fig. 5 depicts the dynamic of remembering basic emotions across different age groups. Table 3 represents the correlation coefficients for emotions remembered in Task E, which, however, cannot be considered statistically relevant for insufficient cases of occurrence. Due to the gaps in the occurrence series, the correlation coefficients have been calculated only for those age groups where both members of the emotion pair showed up.

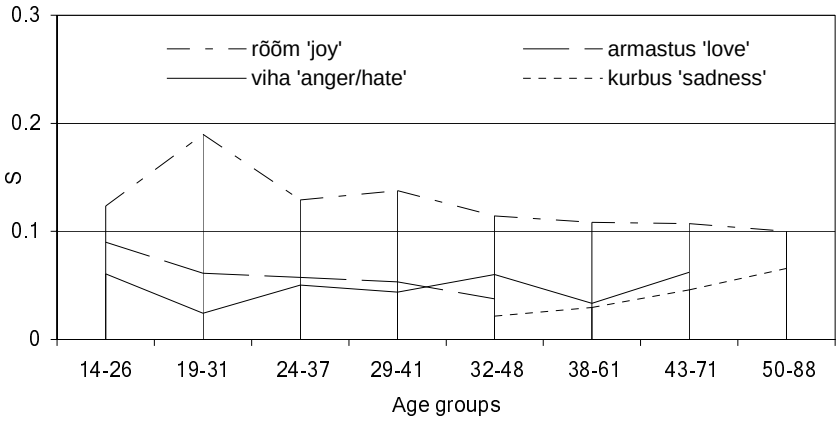


Figure 5. Age-related variation of the basic emotions in task E.

Table 3. Correlations between emotion saliences across age groups in task E.

Emotion salience	1	2	3	4	5	6	7
1. anger	–	.088	.266	–.684	.576	.432	.401
2. love		–	–	.082	**–.855**	–.680	–.426
3. sadness				– **–.956**	–.771	.266	–.638
4. joy				–	–.427	–.640	–.684
5. contentment					–	**.798**	–.267
6. fatigue						–	.516
7. surprise							–

3.2.3. Comparison of the results of tasks A and E.

Age-related differences could be observed in what is considered to be an emotion in the first place (Fig. 4) as well as in what emotions are recalled from one's recent past (Fig. 5). At that, both the general verbal productivity and, accordingly, the salience indices (calculated from the coincident vocabulary, i.e. from expressions occurring with at least three participants) are considerably higher for Task A than for Task E.

The age-related variation of the differences ($S_a - S_e$) between cognitive salience and recall rate can be followed in Fig. 6. The closer the $S_a - S_e$ reading is to the 0-axis the higher the correspondence between the salience of the emotion word in the semantic knowledge and the rate of its use by the participants for the categorisation of their own experience. The upper (positive) half of the graph shows the hypercognitisation and the lower (negative) half demonstrates the hypocognitisation of the given expression in the given age group. As is revealed by Fig. 6, the word with the most dynamic salience across different age groups is *rõõm* 'joy'. Up to the age of 29 *joy* is considerably hypocognitised (peak $S_a - S_e$ = –.135). Among the middle-aged people (32–48), however, the feeling is rather hypercognitised. The average difference between the Tasks A and E across all age groups is $S_a - S_e$ = –.012. Of other basic emotion terms *kurbus* 'sadness' is hypercognitised in the middle-aged participants (the peak is in the group aged 38–61, in which $S_a - S_e$ = .137, while the average $S_a - S_e$ = .1). The word *armastus* 'love' is hypercognitised in the young and in the older persons (the peak falls in

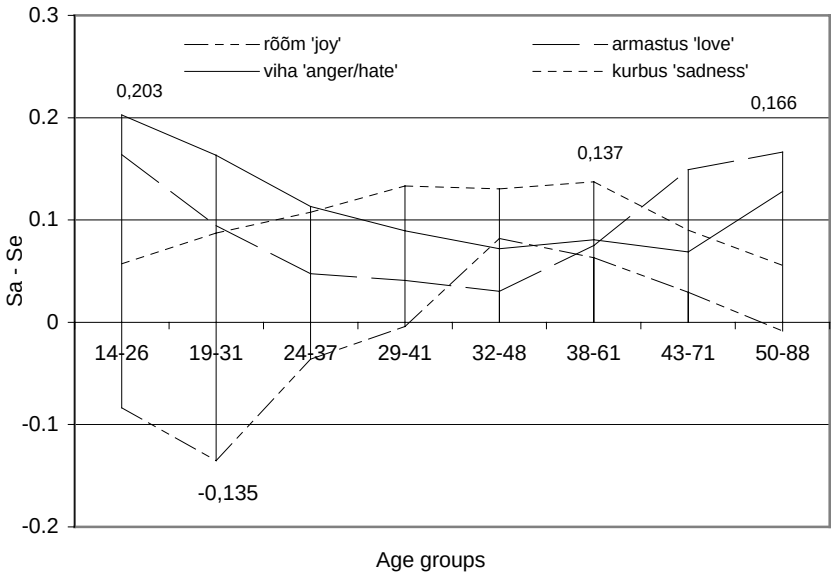


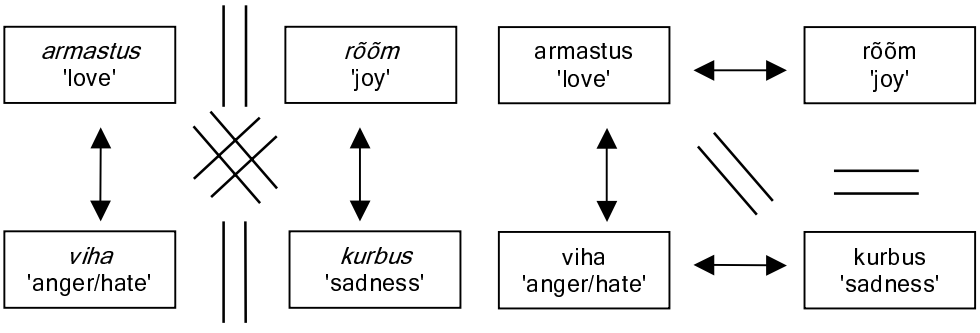
Figure 6. Age-related variation of general verbal productivity.

the group aged 50–88, with $S_a - S_e = .166$, the average $S_a - S_e = .0960$). The word *viha* ‘anger/hate’ finds the highest hypercognition in the youngest participants (peak $S_a - S_e = .203$, average $S_a - S_e = .115$).

Adding up the absolute values of $S_a - S_e$ one will notice that the difference between the semantic knowledge and the availability of words to describe one’s personal experience is at its maximum ($\Sigma| S_a - S_e | = .51$) for the youngest (aged 14–26) and at its minimum for the middle-aged (29–41) participants ($\Sigma| S_a - S_e | = .27$).

The correlation coefficients calculated between the occurrence of four basic emotion terms across age-groups[9] (Tables 2 and 3) can be used to draw such graphs as in Fig. 7, where a) and b) refer to the results of Tasks A and E, respectively. The arrow indicates a positive correlation across the age groups, while the double lines stand for a negative correlation. The strength of the correlations is not reflected in these graphs. As can be seen in Fig. 7 a) there are two antonymous pairs of emotion words, *viha* ‘anger/hate’ – *armastus* ‘love’ and *rõõm* ‘joy’ – *kurbus* ‘sadness’ with positive mutual correlations inside the pairs and negative correlations with all other basic emotion terms. The positive correlation manifested in the age variation of emotion word salience has a clear reference to the conceptual contrast of the respective emotion concepts, which seems to lie at the base of the structure of semantic emotion knowledge. The mutually negative correlation, however, between the members of the pairs, *joy–love* and *sadness–anger/hate* can be explained by their conceptual similarity: both *joy* and *love* belong to the subcategory of positive emotions, while the preference of one or the other differs in different age groups. Similarly, both *anger/hate* and *sadness* represent the category of negative emotions, while their topicality for different age groups tends to diverge.

In episodic emotion knowledge (Fig. 7 b), however, the negativity/positivity and the semantic contrast of emotion concepts does not seem to mean much. Here positive correlations are probably associated with the occurrence of a given pair of emotions in concrete emotional situations (the pairs *anger/hate–sadness*, *anger/hate–love* and *love–joy*) and the negative correlations supposedly due to the



a) Task A b) Task E

Figure 7. Directions of correlations of the basic emotion terms in semantic emotion knowledge (task A) and in episodic emotion knowledge (task E).

fact that the corresponding pairs (*sadness–joy* and *joy–anger/hate*) do not typically co-occur.

4. Conclusion

As a result of the list task of emotion vocabulary, it is possible to find out which emotion terms are basic and common for the native speakers of Estonian. Such basic common terms (cultural norm, independent of age or gender) are *viha* 'anger/hate', *armastus* 'love', *kurbus* 'sadness', and *rõõm* 'joy' (Vainik 2002), but there are also intracultural age- and gender-related differences in the scope, structure and availability of emotion knowledge.

Gender-based are the differences in the salience of basic Estonian emotion terms, as are the number and inventory of concepts associated with emotions. In addition, there are differences in hypercognitised emotions, as men hypercognitise *anger/hate, rage*, *weeping/tears, hatred, fear, and pain*, whereas women tend to hypercognitise *sadness, joy, love*, and *tears*. Women display a higher divergence in the salience of central emotion concepts in semantic and episodic knowledge. For women, semantic emotion knowledge was accessed more easily. In addition, there is a particularly clear difference between the basic and nonbasic emotion terms, while the terms women use to describe their own experience are rather more specific.

Age-related variation makes a very clear appearance in the salience of basic emotion terms. Here it is important to note that emotion terminology is structured by conceptual contrast manifested in lexical antonymy. For the young, the most topical polar opposition occurs between *anger/hate* and *love*, for the middle-aged, however, it occurs between *joy* and *sadness*. The results of the older persons fail to display any polar opposition between basic emotion terms. The difference between the salience of basic level emotions in semantic and episodic knowledge was largest for the youngest participants (age 14–26), whose attitude towards most of the basic emotion terms was either hypercognition (*love, anger/hate*) or hypocognition (*joy*). The highest degree of similarity between the basic level salience of semantic and episodic emotion knowledge was found in the middle-aged (age 29–41) participants.

Following the age variation of the salience of basic emotion terms (Fig. 4), one can see that there are two periods critical for the structure of basic-level emotion knowledge. The first is in the group aged 21–47 (mean 38), when the polar opposition of *love* and *anger/hate* characteristic of the younger groups begins to be replaced by a rise of *joy* and *sadness*, while *love* loses its topicality, and *anger/hate* retains its former salience. The shift could be interpreted as intrapersonal emotions rising to the foreground of emotion knowledge. The replacement of interpersonal terms by intrapersonal ones is not quite simultaneous in the fields of positive and negative emotions. Notably, the positive term *armastus* 'love', is replaced by *rõõm* 'joy' earlier in its high-salience position, than the negative term *viha* 'anger/hate' is

replaced by *kurbus* ‘sadness’. The domination of intrapersonal emotions and states in the middle-aged group is corroborated by the occurrence of *nukrus* ‘wistfulness’, *igavus* ‘boredom’, *segadus* ‘confusion’, *rõõmus* ‘glad/happy’, *mure* ‘worry/sorrow’, and *ängistus* ‘anguish’ among salient words. As for episodic memories of the recent past (Fig. 5), the middle-aged period marks the end of recalling how one experienced *armastus* ‘love’ and the beginning of recalling how one experienced *kurbus* ‘sadness’. As we know, this period is referred to as “midlife crisis”.

Another critical period when the topicality of certain emotion concepts is revaluated belongs to the age group 43–71 (M = 57). This is when *armastus* ‘love’ regains some of its high salience, while the rest of basic emotion words keep their position more or less. As the rise in the salience of *armastus* ‘love’ is not accompanied by a new rise of *viha* ‘anger/ hate’, there seems to be some reason to assume that the concept of *love* has changed for the older groups (e.g. from egotistical to altruistic), and has lost its polar opposition with *anger/hate*. Also, it is possible that in those age groups the objects of love are, perhaps, grandchildren rather than peers. A closer analysis of the semantics of emotion terms and the possible changes in the contents of emotion concepts would certainly make an exciting subject of further research.

To sum up, although the Estonian vocabulary (emotion words included) is shared by the whole language community, its topicality and availability for active use reflects the different conceptions and attitudes characteristic of different subgroups of the community.

5. Discussion

The field data on the cognitive salience of Estonian emotion vocabulary elicited by list tasks, which are easy to express and compare by means of the index of cognitive salience (S) introduced by Sutrop (2001), are indicative of certain gender- and age-related tendencies in the salience of emotion vocabulary. The following is an attempt to analyse to what extent these results may coincide with what can be found in literature on the influence of gender and age on the expression and recognition of emotions.

First, the present results prove what is generally recognised in psychology, notably, that women have higher verbal ability than men. This is manifested in the difference between men and women in average verbal productivity as revealed by Task A (see Table 1). In Task E, however, which tested episodic emotion knowledge, the difference between men and women in verbal productivity was irrelevant. Tulving (1984) has guessed that the actualisation of episodic information requires some conscious effort, while semantic information is used automatically. This should be particularly true about women, as in Task A the women were almost twice (1.85 times) as verbose as in Task E. They were eager to name not only emotions as such, but also certain socially important attributes and phenomena associated with emotions.

The women's higher productivity in the list task A of emotion vocabulary may probably be associated with women's higher competence in the field of emotions. Supported by statements from several studies, Brody and Hall (2000), for example, have found that women are emotionally more competent and more expressive, in particular with verbal expression. According to Grunwald et al. (1999), women carry out emotional and linguistic tasks more precisely, as they are more sensitive to that kind of stimuli. As women are also better at recognising emotions, Thayer and Johnsen (2000) argue that women's space of affective differentiation is more complex than men's. Schimanoff (1983) has shown that women have a richer emotion vocabulary (at least in writing) and that they perceive negative emotion words as more negative and more intense than do men.

According to Fischer (1995) there are some gender-related differences in the importance attached to emotions which may be due to educational differences. She claims that in bringing up girls, mothers always use more positive emotion words, turning a lot of detailed attention to their emotional states, whereas with boys the focus tends to be on causes and consequences. As women usually pay more attention to emotions, speaking of them more often and knowing more about them, they are regarded as better experts in the field. Fischer (1995) has found out that although the emotion vocabulary of women is more active, there is no considerable difference in the basic level emotion knowledge of men and women.

In the results of the present study the women's yield at Task A shows a clear difference between the basic and nonbasic terms according to their cognitive salience. Thus, the set of common basic terms for emotions (the nouns *viha* 'anger/hate', *armastus* 'love', *rõõm* 'joy' and *kurbus* 'sadness') as the Estonian norm of emotion knowledge seems to be established by women rather than men. This may be due to the fact that women agree more on their emotion knowledge and the lexicalisation (noun) level of their emotion knowledge is higher.

Despite the generally recognised tendency for several cognitive abilities to decline with age,[9] studies of possible age-related changes in verbal ability have yielded contradictory results, some proving stability, some demonstrating a downward trend. The ability to recall words, important from the point of view of this study, has been found to decline with age (Nicholas, Obler, Albert, and Goodglass 1985).

Not much has been written on the age specifics of the availability of emotion words. Grunwald et al. have studied the lexical perception of emotion vocabulary in men versus women as well as along the age axis. From the results of his tests of verbal stimulus recognition, he concludes that older people tend to suffer some loss in the precision of their lexical perception, no matter whether the expression concerns emotions or not. Older people seem to be characterised by an attribution of emotional intensity (i.e. they tend to suspect emotional stimuli even where there are none whatsoever). At that, negative stimuli are perceived as more intense than positive ones. As for the lexical elaboration of emotions, it is argued that precision

[9] See Grunwald et al. (1999) with its numerous references.

decreases with age, but not intensity (Grunwald et al. 1999). The attribution of emotional intensity in the older age group is explained by Carstensen's (1995) theory of socio-emotional selectivity arguing that, "the regulation of emotion becomes increasingly salient over the life course" (p. 152).

The theory of socio-emotional selectivity as well as the phenomenon of emotional attribution is in harmony with present findings that, with advancing age, the verbal productivity increases in the list task of emotion words. At that, growth was observed both in the participants' readiness to list members of the category "emotions/feelings" and to describe their own emotional experience. An even more remarkable increase appeared in the variety of the words produced, in older people in particular. The growth of lexical variety may have different causes, such as the men's habit of giving lexical variants of one and the same emotion concept, responding with semantic variants *kurbus–nukrus* 'sadness–wistfulness', viha–vihkamine 'anger/hate–hatred', or the women's habit of naming associations and qualities of emotions. However, the general tendency towards the growth of variety in the responses to lexical tasks may be related to the above-mentioned decline in the precision of lexical elaboration of emotions with a simultaneous growth of intensity (Grunwald et al. 1999). According to the results of the present study, the older the person the more numerous, specific and idiosyncratic his or her words.

The statement that the available emotion concepts affect the perception as well as the remembering of emotional experience (Halberstadt, Jamin, and Niedenthal 2001) seems to hold as the present study revealed, a strong positive correlation (r = .809) between semantic emotion knowledge and the rate of active vocabulary used to describe episodic emotional memories. Especially conspicuous for the semantic coincidence of emotion vocabulary and, consequently, for their unanimity over emotion knowledge was the group of middle-aged (32–48) participants. This holds for both tasks, i.e. the one testing semantic knowledge as well as the one requiring recalling episodic emotional memories. It appears that by that age native speakers of Estonian arrive at a certain consensus in what should be considered an emotion and what should not. In older groups, the solidarity of opinion weakens again.

In some earlier papers, I have argued that for Estonians the most prototypical emotion is anger as anger was the most salient concept in the list task (Vainik 2002). The present study reveals that although the most prototypical emotion changes with age (see Fig. 4), being *anger/hate* for the young, *joy* for the middle-aged and *love* for the older group, *viha* 'anger/hate' is the only basic emotion term that retains its remarkable cognitive salience across all age groups. In all age groups, *anger/hate* is also the most hypercognitised emotion (the average $S_a - S_e$ = .115). It is this relatively high salience for all age groups that has given *anger* the status of the most prototypic national emotion.

Some scholars have found dependence between the evaluations of emotion similarity and the correlations appearing in self-evaluation of emotions (Schimmack and Reisenzein, 1997). They agree that those emotions that often co-occur

are considered similar, while the more frequently occurring ones are considered more similar with a larger number of others. As for emotional intensity and valency (positivity and negativity), those authors tend to regard them as parameters of emotional episodes, rather than part of semantic emotion knowledge. According to Schimmack and Resenzein (1997) memories of emotions are episodic and, as such, more easily available than abstract emotion knowledge. In the present list task, however, semantic emotion knowledge was available about twice as easily as episodic knowledge. The availability was supported by the semantic relations of synonymy and antonymy. Lesser availability in the Task E may reflect also reluctance to admit having experienced certain emotional states.

Relying on the results of the list tasks I conclude that emotion vocabulary is most likely organised differently on different levels. It has been claimed that on an experiential level (people using the words to describe their experience), the semantic variation of the whole emotion vocabulary is accounted for by two dimensions: Positive Affect and Negative Affect, which are claimed to be unipolar dimensions, not to be regarded as opposites (Allik and Realo 1997, Watson and Clark 1994). On the conceptual level (i.e. in language semantics, based on folk emotion models), however, there is a vital opposition of the positive and negative emotions as subcategories of the emotion category (Vainik 2002). The difference in the results of Tasks A and E, as revealed in the present study (see Fig 7), confirms the conclusion that in the collective consciousness, semantic and episodic emotion knowledge (as well as the vocabulary used to express it) are organised in different ways.

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Address:
Ene Vainik
Institute of the Estonian Language
Roosikrantsi 6
10119 Tallinn
Estonia
E-mail: ene@eki.ee
Tel.: +372 6442 892
Fax: +372 6411 443

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Appendix A

The results of task A: Cognitive salience (S) of elicited emotion terms, calculated as general and as for different groups based on gender and age.

Word	S_g	S_m	S_w	$S_{14–26}$	$S_{19–31}$	$S_{24–37}$	$S_{29–41}$	$S_{32–48}$	$S_{38–61}$	$S_{43–71}$	$S_{50–88}$
viha *'anger/hate'*	**.155**	**.164**	**.153**	**.263**	**.187**	**.164**	**.133**	**.132**	**.114**	**.131**	**.128**
armastus *'love'*	**.146**	**.131**	**.160**	**.254**	**.156**	**.105**	.094	.068	.075	**.149**	**.166**
kurbus *'sadness'*	**.108**	.080	**.145**	.057	.087	**.108**	**.133**	**.152**	**.167**	**.136**	**.121**
rõõm *'joy'*	**.104**	.083	**.137**	.040	.055	.093	**.133**	**.196**	**.172**	**.137**	.092
naer 'laughter'	.043	.042	.045	.030	.044	.052	.063	.092	.063	.035	.026
raev 'rage'	.034	.042	.036	.067	.077	.047	.033	.038	.039	.026	
nutt 'weeping/tears'	.033	.040	.029	.016	.027	.023	.038	.077	.066	.040	.019
rõõmus 'glad/happy'	.028	.042						.1			
nutmine 'weeping'	.025	.036		.059							
tunded 'feelings'	.023		.045								
kurb 'sad'	.023	.033		.030				.050			
vihkamine 'hatred'	.020	.025	.017	.040	.037						
hirm 'fear'	.018	.021	.015	.020			.024	.044	.033	.018	
pisarad 'tears'	.018	.012	.024	.033	.021	.016	.016	.029	.024		
rahulik 'calm'	.016	.032				.032	.033				
valu 'pain'	.014	.020	.011		.022	.040	.035	.028			
nukrus 'wistfulness'	.014	.024					.023	.023			
tigedus 'spite'	.013		.016								.037
mure 'worry/sorrow'	.012		.018					.027	.036	.034	
hellus 'tenderness'	.012		.012							.031	.033
kadedus 'envy'	.011		.016	.021							
rahulolu 'contentment'	.010	.021			.026	.027	.028				
karjumine 'shouting'	.009			.030							
närvilisus 'nervousness'	.009		.011								
õnn 'happiness'	.008	.011				.015	.018	.021			
sõprus 'friendship'	.008			.025							
ängistus 'anguish'	.008							.018			
päike 'sun'	.008		.009				.014	.014	.014		.009
kirg 'passion'	.007		.014			.019					
ükskõiksus 'indifference'	.007		.009								
külm 'cold'	.006		.007								
igavus 'boredom'	.006	.009					.016	.016			
kaastunne 'pity'	.006										.013
soe 'warm'	.005			.014							
segadus 'confusion'	.005	.007					.015				
õrnus 'tenderness'	.005		.007								
sõbrad 'friends'	.004		.009								
armukadedus 'jealousy'	.004		.008								
lilled 'flowers'	.004		.005								
vaenulikkus 'hostility'	.003		.006								
üksindus 'loneliness'	.003		.006								
agressiivsus 'aggression'	.003		.006						.01		
rahu 'peace'	.002		.005								

Appendix B

The results of task E: Cognitive salience (S) of recalled emotions, calculated as general and as for different groups based on gender and age.

Emotion	S_g	S_m	S_w	$S_{14–26}$	$S_{19–31}$	$S_{24–37}$	$S_{29–41}$	$S_{32–48}$	$S_{38–61}$	$S_{43–71}$	$S_{50–88}$
joy	**.116**	**.106**	**.129**	**.123**	**.190**	**.129**	**.138**	**.114**	**.108**	**.107**	**.100**
love	.046	.033	.059	.090	.061	.057	.053	.038			
anger/hate	.045	.061	.035	.061	.024	.050	.044	.060	.033	.062	
contentment	.042	.051	.033		.026	.045	.069	.077	.049	.046	.042
fatigue	.036	.028	.052	.033	.027	.064	.063	.063			
fear	.028	.016	.039	.067							
sadness	.026	.016	.036					.022	.030	.046	.066
surprise	.023		.050			.040	.030	.041	.038	.039	
boredom	.021	.020				.032	.033				
misunderstanding	.015		.025								
happy	.015			.050							
disappointment	.013		.013				.043	.043			
nervousness	.013	.026									
happiness	.012	.017			.029		.014	.016			
apprehension	.011		.020								
suspense	.011			.027							
tension	.010	.013		.020							
laughing	.010	.020									
friendship	.008		.016	.027							
feeling hurt	.008		.016								
yearning	.018				.024	.024					
exhaustion	.008							.025	.025		
curiosity	.007		.008								
friendliness	.006		.013								
positive	.006	.012									
pity	.005		.011								
annoyance	.005		.010						.017	.017	