

Remembering together.

How sharing memories influence information recall, effort after meaning, and monitoring of memory processes

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The aim of this paper is twofold. First, I intend to review some classical contributions, studying how remembering together with others may influence basic functions of individual memory -- as information recall, reconstruction of the meaning of past stimuli or events, and monitoring activities that spontaneously follow remembering acts. Second, I will try to speculate how these classic intuitions may be applied to new perspectives due to interaction design.

1. Can memory be socially improved? Introducing the Vygotskijan perspective on social intermediation of memory processes

Memory is usually studied and commonly represented as an individual faculty, allowing past information (coming from senses or from some internal activities, as thoughts, fancies, mental images, etc.) to be recalled, being the original stimulus already disappeared from current experience. It may therefore be conceived as a link between past perceptions and current states of mind. From a phenomenological point of view, memory may occur either after a conscious decision, when the person actively seeks for a memory to come to his\her mind, or may on the contrary "pop up" abruptly. In this case, usually a hint in external ambient (as a smell, a sound, a word, a particular view) or in the subjective activity (as a thought, a feeling or an emotion, a mental image, etc.) acts as a cue -- retracing, through a more or less complicated chain of associative links, the original memory.

Starting from these observations, Lev Vygotskij proposed the idea of dividing memory processes into two main categories:

- *Elemental processes*, due to direct associative links between current situation and past perceptions and experiences;
- *Superior processes*, guided by active decision and willingness of the remembering one.

Moreover, he under stressed how the peculiar feature characterising human memory from the animal one, is the conscious use of intermediations to guide associative chains linking actual cues to past memories; *intermediations* that he exemplified in activities either meant to private eyes only (as knotting one's own handkerchief) or aimed to well chosen communities (as putting a statue in a public garden to remember an excellent citizen).

"The very essence of human memory is that human beings actively remember with the help of signs. (...) As one psychologist (Dewey) has said, the very essence of civilization consists in the fact that we deliberately build monuments so as not to forget. In the knotted handkerchief and the monument we see the most profound, most characteristic and most important feature which distinguishes human from animal memory" (Vygostky, 1931: 86; 1978: 51)

If we adopt the observation criteria proposed by Vygotskij, the well cut border between individual memory and social environment tend to become more complex. In fact, social activities in which we are embedded may influence our memory, facilitating or inhibiting it.

A well-known series of experiences organised by the research group coordinated by Vygotskij and exposed by his disciple Leontiev (1931), showed how a memory performance is ameliorated or damaged by an external help. In fact, if remembering subjects were able to organise their own chains of intermediations, they showed a poorer memory performance when, before remembering, an external set of intermediations (pictures representing the words to be remembered) was shown. On the contrary, when subjects had some memory difficulty (because they were younger, and therefore less able to organise their recall, or because of some intellectual deficit), the presence of an external help, giving them a prearranged possibility of intermediation, clearly ameliorated their memory performances.

As it is known, the experimental work of this research group was very soon interrupted, because Vygotskij died very young. Nevertheless, in this initial scientific production, covering only a ten years span (from 1924 to 1934), was already shining such a genial transformation of previous research paradigms, to suggest to Toulmin a parallelism between Vygotskij tragic role in the history of psychology and the one attributed to Mozart in the music development.

In a certain sense, time shortage made some features of his set of researches to remain partly unexplored or, anyhow, too rough to show all the subtleties proposed by the theoretical model itself. Nevertheless, these data clearly demonstrated that individually impaired memory might be socially *improved*. This is a facet of the most basic Vygotskian idea of the existence of an area of individual development that may be brought to perfection only through educative tools, proposed and made available by social structures, and therefore changing according to cultural and historical periods.

Commenting on his own results and theoretical models, furiously attacked by the establishment of his own society (the USSR in late Twenties and first years of Thirties, when Stalinism entered the life of scientific community, as well as any other kind of organised social life, cruelly showing its will to persecute any kind of intellectual originality), Vygotskij bitterly acknowledged:

".....I'm inclined to think that it (my memory research) represents a colossal oversimplification, even though at first it was often criticised as unduly complex" (Vygotsky, 1932: 392).

It is touching to note how, in last years of his too short life, while enduring a stupid and violent persecution against his ideas, considered too much "immaterial" to fulfil the needs of a Marxist point of view on psychology (Bakhurst, 1990), Vygotskij not only had completely overruled many limited research paradigms of his time, but was also conscious of further changes necessary for a better understanding of memory processes.

In fact he felt that his procedure and tasks were somehow too simple to capture all the facets of memory processes. A set of word was shown, a set of intermediations was given, and then a comparison

between the number of words shown and the ones recalled was used as an index of memory performance.

Although recognizing that complexity reduction was necessary to produce the smart simplicity essential to experimental settings, Vygotskij was aware that, in the case of memory, these research procedures could lead to "colossal oversimplifications". In fact, interviewing participants after their use of intermediations available during the experience, he noticed that some child had used pictures in a way that was much more complicated than a simple chain of associative links. A child associated the picture of a crab near a stone to the word "theatre", saying that the animal looking towards the stone reminded him of a man, staring at the stage; another young participant used a camel as a cue to remember the word "death", imagining a story in which a lost voyager starves in a desert, without food and water. Therefore, interviews of participants clearly suggested that the efficiency of intermediations was due not only to a more or less complicated chain of associative links, but also to a creative way of inserting these cues in a complex strategy, aimed to seize a relationship between the meaning of the stimulus and the meaning of the intermediation used as a cue.

These observations demonstrated how the experimental task -- recalling a series of words -- captured not only the *reproductive* aspect of memory, but also the *reconstruction of the meaning* of past experienced stimuli. Unfortunately, Vygotskij had no time to change these intuitions into new research procedures.

Nevertheless, as it is well known, in these same years another researcher decided to focus his work precisely on this reconstructive aspect of memory, summarising his results in a book, *Remembering*, bound to become a classical quotation in memory research (Bartlett, 1932).

2. Meaning reconstruction and social schemata: Bartlett contribution

Unlike the mainstream of his days' memory research, Bartlett proposed the provocative idea that memories are *not* copies, more or less accurate, of the past.

As it is known, the development of psychological studies on memory reached an important turning point because of the innovative procedure, invented by Ebbinghaus, of nonsense syllables. Using this meaningless material, Ebbinghaus could observe how different kind of exercise may cause a more or less high performance in recalling the lists studied, being certain that no association whatever could link nonsense syllables to previous knowledge. In other words, by this new procedure Ebbinghaus disentangled effects of rehearsal from effect of association with previous knowledge, showing that these basic memory processes could be investigated by experimental procedures. Bartlett obviously recognised the skilfulness of this kin procedural device, but strongly argued on ecological validity of these results. In fact, in Bartlett (1932) very words, these "lifeless copies" could be seen only as "unpleasant fictions", due to the artificial setting of laboratory tasks. In everyday life, however, it is very unlike to have to study and reproduce meaningless material: quite every time, on the contrary, memory can be seen as an effort to reconstruct the meaning of past perceptions and experiences, trying to grasp the gist of the

memory itself. Referring to Bartlett definition, then, every act of memory, at any time we recall it, is constructed freshly anew.

Starting from this theoretical position, Bartlett proposed to study permanent memory by an original methodology, called "repeated reproductions method". After showing participants a meaningful material (a map, a drawing, a story, etc.) he asked them to repeat their reproductions at different times, and appreciated the work of the memory as the gradual shaping of a new and more complete meaning, emerging from differences between these repeated reproductions. This creative transformation of original material was due, from Bartlett point of view, not to "mistakes", as in theoretical models viewing memory as a copy, but to a never-ending effort of understanding the gist of original items, slightly changing any reproduction until the memory has reached a stable meaning pattern. In this new procedure, social aspects of remembering were made evident in two principal ways.

First of all, to make the observation of the "effort after meaning" done by memory as clear as possible, Bartlett used a material coming from other cultures (e.g. American natives or African). Confronted to these unusual contents, the repeated reproduction method showed, from repetition to repetition, a process that Bartlett called *conventionalisation*: material was changed so that any unfamiliar content was forgotten, while new and more plausible elements were inserted, producing a final memory that was sometimes extremely different from the original one, gradually shaped into more familiar schemata.

Second, Bartlett asked in some trials participants to "pass" their memories from one to another: for instance a first participant, having heard a story, had to recount it to a second; the second had to recount what he heard to a third subject and so on... Through this different kind of repeated reproductions (called *serial reproductions*), Bartlett tried to capture what happens in everyday life, all the time we receive second hand news. By this procedure, he somehow replicated what happens in social phenomena as the creation of rumours, or the spreading of false anecdotes (the "urban legends"); but he also represented, to a more general level, the deep changes affecting a memory, when it is shared with others through a narrative activity.

In short, repeated reproduction method suggested that memories frequently rehearsed or recounted to other people are not only made more stable, more accessible and "alive"; somehow they are spoiled, too. In fact, reconstructive changes due to the "effort after meaning" made by memory are amplified by elaborations during internal rehearsal, or by the need of putting one's memories into words and arranging them into a plausible narrative shape, to make them comprehensible for the listening ones. Some participants make clear this point, declaring after the task of having changed some "funny" (i.e. culturally unusual) details, to help to create a more "sympathetic climate" with their listener.

Of course, some of these effects could be a direct consequence of Bartlett methodological choices. It could be argued, in fact, that Bartlett instructions were too loose: asking participants to reproduce the items, in fact, he did not stress the necessity of being as precise as possible (also because of its theoretical model of memory, emphasising only reconstructive aspects vs. reproductive ones). Participants could be, therefore, induced to confabulate (Kintsch,

1995). Nevertheless, his methodological choices, although somehow too informal, let him discover a set of phenomena extremely important in everyday uses of memory. Asking participants to repeatedly reproduce a same memory, in fact, he highlighted how rehearsal or sharing activity are aimed not only to reconstruct the meaning of past experiences, but also to “turn around” memories, so as to check and ameliorate them. The spontaneous use of these monitoring activities is another crucial point to consider, if we want to grasp social influences on memory.

3. Turning around one’s own memories: The role of monitoring processes

If we look at memory performances outside laboratory settings, when remembering is used to fulfil needs characterising everyday life (cfr. Cohen, 1986; 1996; Neisser, 1982), we may see that very often, while people remember, they not only recall a previously perceived content, but also try to be certain of getting the essential meaning of it, what Neisser calls its “gist”. Therefore, they constantly evaluate and monitor the quality and validity of their memory processes. To better understand this point, let us examine some of these everyday phenomena.

Consider, as an example given, the situation in which you perfectly know that some content is present in your memory, but you cannot reach to grasp it at the moment (as in the popular way of speaking, saying that you have this content “on the tip of your tongue”). This means that, although you cannot temporarily access this memory, nevertheless you have somehow the possibility to know that it is stored in.

On the other hand, you may perfectly know that some content is new at all for you, and yet have a strong feeling of having a memory of it (as in the *dèjà vu* phenomenon). This perfectly reverses what happens in the tip-of-the-tongue. In this case, your awareness tells you that this content is not stored in, although you may have a strong illusion to access it as a proper memory.

Or consider what happens to a memory that is frequently rehearsed or recounted to other people. In fact, elaborations during internal rehearsal, or the need of putting one’s memories into words and arranging them into a plausible narrative shape, to make them comprehensible for the listening ones, are all processes that cause content reformulations “sticking” to original experience, irreparably changing memories forever. Nevertheless, in spite of awareness of re-arrangement made, people spontaneously try to monitor the source of their memories, distinguishing between original sensations and perceptions and further imaginations, comments and thoughts. For instance, through the so-called source monitoring (Johnson, Hashtroudi & Lindsay, 1993), the remembering person tries to evaluate, as far as it is possible, differences between what was really experienced and what was later elaborated or imagined, starting from the type of content prevalent in memory itself (more sensations and perceptions, for previous experiences; more considerations and reflections, for further reformulations). In an interesting series of experiences, Mazzoni keenly demonstrated that people, to a certain extent, manage to distinguish between really experienced and reformulated contents, disentangling what they actually remember from what they know about this same memory.

Strictly linked to these *monitoring activities*, other phenomena spontaneously shadowing recalling occur, due to the degree of *confidence* that people show in the accuracy of their own memories. Sometimes persons feel that their memories are highly accurate; other times they seem more doubtful. Interestingly, a large number of researches demonstrate that confidence feelings are very loosely related to the actual accuracy of memories themselves, while they seem much more linked to the situation in which memory occurs (a testimony during a trial arises more doubts than an informal chat with friends) and to personality characteristics of the remembering person, being more or less self-assured (Ross,1997).

Nevertheless, although confidence cannot be used as a good way to evaluate accuracy, it is an intriguing phenomenon per se. For instance, we recently made a series of experiences, using a very easy recognition task. Four people did any session. In the experimental condition, 3 of them were confederates instructed to make an evident mistake in some critical trials, overtly declaring their wrong answer in front of the experimental subject, who was obviously unaware of the fact that the other 3 were instructed to say their foolish answers by the experimenter. Results showed that socially isolated subjects, exposed to the wrong influence of the unanimous majority of confederates, did not change their correct answer to the task, but significantly diminished their degree of confidence on the accuracy of correct memories. In control condition, in which the experimental subject was not the only one stating the right answer, the effect vanished. (Leone & Ritella, in press). Our results suggest that the confidence degree may be linked more to the social acceptance of memories than to accuracy itself.

In short, out from psychological labs, remembering people not only recall a more or less high degree of original stimuli, but also incessantly check the quality and accuracy of their own memories, decide if share them with others or not, and resent deep emotions linked to the recalling of some particular memories or to the sharing activity itself.

All these phenomena cannot be reduced to the memory capacity of *copying* past reality. In fact, they pertain more to the interpreting function of memory: in other words, to the need not only to replicate reality but also to be reasonably certain of having grasped its meaning or core, out of unessential details.

4. Remembering what we already know. Halbwachs and the repeated family memories.

Until now, we analysed how others may influence us in remembering (or fail to remember) particular contents. Yet, there is another social use of memory in which sharing information is not the first aim; moreover, it is not an aim at all. In fact, every now and then, groups and communities spontaneously engage themselves in an activity at first glance purposeless: remembering what everybody already knows. This same pattern of shared remembering may occur during a dinner, in which old friends recall yesterday anecdotes, just for the old times' sake; or in a serious institutional reunion, in which authorities remember the well-known story of the particular contribution given by a famous member to the institution itself. In a certain sense, we may say that these are, let apart their striking differences in power and

consequentiality, just two of the many commemorations, private or public, to which we are confronted during all our lifetime.

Family is one social context in which this kind of joint remembering of well-known contents is very frequent. Researches based on non intrusive observations of spontaneous conversations estimated that, for every hour observed, a number ranging from five to seven sequences of communication were based on remembering memories known by everyone (Blum-Kulka & Snow 1992; Miller 1994).

This kind of "social game" of the family was keenly observed and commented by Maurice Halbwachs. In the famous fifth chapter of his essay on the social framings of memory, Halbwachs (1925) describes what happens "when a family remembers". Members of the family, when no extraneous can hear them, repeatedly share memories of some little episode of family life, or recall personality and characteristics of some particular member. Halbwachs asked himself what is the need for repeatedly sharing info that is already perfectly mastered by anyone. Moreover, he wondered why some episodes or some family members are more frequently remembered than all the other ones. His theoretical explanation, although speculative, sounds very convincing and, although formulated so many years ago, yet unsurpassed. In these memories, he argued, family members -- and only them -- may find not info, but most of all

"the more or less mysterious symbol of the common ground from which they all originate their distinctive characteristics" (Halbwachs, 1925, it. ed. p.35).

In pioneering work made by Halbwachs on social framing of memory a new and most important aspect of remembering together is shown: the aim to create and consolidate the sense of belonging to an affective community. In fact, according to the innovative proposal of Halbwachs, social sharing of memory may be seen as one of the most valuable protective factor that a meaningful community may give to its members. In fact, in his very words, it creates a kind of "affective armour", constantly reminding subjects of the way their groups were able to cope with past difficulties and challenges (for a comment on today impact of classical theory of Halbwachs see also Leone 1996, 1998, 2001a, 2001b; for an important reflection on relationships between commemorating activities and affective coping, see Frijda, 1997).

5. How interaction design may foster social remembering activities.

In the last part of this paper I will try to speculate how classical contributions on social dimensions of memory, above reviewed, may be applied to new dimensions of interpersonal and collective interaction opened by interaction design.

Starting from the point made by Vygotskij theories on memory, on crucial role of voluntary intermediations to guide information recall, it is obvious how new computerised devices for storing and communicating information creates a multiplicity of possible associative chains, helping users to recall more easily and quickly pre-selected info. Certainly, as under-stressed by Leroy-Gournan, the tendency to exteriorise the info storage may be considered a constant feature of human memory. Nevertheless, today availability of "virtual

intermediations" may spread new opportunities of socially induced reorganisation of self-guided recalling. If persons could be well taught to use this new kind of self-organised intermediations, they may develop more competence in crucial areas as, for instance, perspective memory for managing formal – e.g. work or study – or informal – e.g. leisure or home managing -- activities.

This use of interaction design is focussed on the mastery of new technologies reached by individuals (and it is easy to imagine that this will create new boundaries between well educated and not educated individuals, as well as between old and new generations).

Other important consequences may be envisaged, on the contrary, depending on the managing of relational potentiality of interaction design.

We have seen, reviewing the classical ideas proposed by Bartlett, that repeated reproductions "passing" from an individual to another accelerated the process of conventionalising memory contents. A frequently repeated remembering of events (as during conversations made in mailing list, or within sites devoted to particular problems or topics) may be another important natural setting for noting how, in everyday life, a memory may dramatically change, when repeatedly replicated. Moreover, in interaction aimed to exchange simple conversations, chats, or to informally share point of view (as in e-mail daily activity), the "effort after meaning" of memory may be amplified and simplified, having made limits due to distance, unavailability or time of waiting for a reply near to the face-to face situation.

It is challenging to imagine how new possibilities of frequent and easy exchange on personal memories, due to technological advances, may influence the wide range of monitoring processes reviewed in the first part of the paper.

Finally, we may propose the idea that, making possible another way of realising the frequent and spontaneous social activity of repeatedly sharing the memory of what we already know, a well structured interaction design could strengthen the affective bonds of collective identity, so accomplishing one of the most basilar tasks that distinguish the psychological sense of community from artificial belongings to transient associations (Sarason, 1974).

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