Review of Association Memory Methods and Usability

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ABSTRACT: *In this work we have presented the review of association memory methods and their usability. Besides, we have presented the file cabinets systems used. We have also detailed the system of managing elements for file cabinets. The required system application is implemented to achieve the goals. The system we have developed enable to manage the queue elements and can impact on the memory tools to ensure efficiency.*

1. Introduction

In almost everything we do there is a lot of data that should be remembered - phone numbers, credit cards, passwords, various codes. Even though there are lots of memory techniques which allow us to easily and efficiently remember all types of data, the average person has no knowledge of their existence. This paper represents an attempt of the authors to contribute to the popularization of the memory techniques, mainly those described in [1]. For one of the methods, called the file cabinets method, we developed a computer application that helps the user to adopt the mentioned technique.

The paper is organized as follows. In section 2 we will get to know the basic association technique, which represents a basis for lots of other techniques and methods. Two such methods are the chain of association method and the file cabinets method, which are described in section 3 and section 4. Section 5 describes the developed application for adopting the objects queue,

used for the file cabinets method and section 6 is the conclusion.

2. Basic Association Technique

The basic association technique is based on making a connection - association between two concepts that are not mutually connected in any way. The simplest way to explain this technique is to use an example of pairs of objects. Let us assume we have the following 4 pairs of objects:

boat - giraffe

ball - cannon

cigarette - phone

skater - bottle

Our job is to remember these pairs so that when someone mentions one of the words, we should say the other word in the pair. The basic association technique is based on picturing an image in our heads in which the both objects appear, such that something illogical or impossible or comic is going on, i.e. the picture should contain something very unusual, since that is what our brains easily remember. For example, we can imagine a giant giraffe standing in a lake up to its knees in the water and a boat is passing below it, like below a huge bridge. For the second pair we can imagine a cannon firing a ball instead of a grenade. For the third pair we could imagine a huge amount of cigarettes going out of the phone and filling up the whole room while we are making a call. Finally, for the last pair we could imagine a skater that has bottle instead of a skate, making various pirouettes. Every person should imagine what suits them the most, and for every person her own picture i.e. movie will be the best possible picture i.e. movie. It is enough to imagine the scene we are visualizing for only a couple of seconds providing that we imagined something totally unusual.

The basic association technique represents a very powerful technique and lots of other techniques and methods are based on the basic association technique. In the next section we will consider the chain of association method.

3. Chain of Association Method

The chain of association method directly results from the basic association method, if we make a chain from the things that are to be remembered. If we get back to the example from the previous section, we would have the next queue of objects:

boat - giraffe - ball - cannon - cigarette - phone - skater - bottle

Now we should make an association between the boat and the giraffe, then an association between the giraffe and the ball, then an association between the ball and the cannon etc. till the end of the queue. For the last element in the queue, the bottle, we can do 2 things. We can make an association with the first element, the boat, or we can place it in some weird position. That way we will know that is the end of the queue. The chain of association method can be used for remembering queues that are practically non limited by their lengths, for which we can reproduce the whole queue in both directions, forward and backwards. In [1] it is shown how the basic association technique may be used for remembering all sorts of data, not only objects. Using the chain of association method we can remember the sequence of the main points for some lecture we have to give, the sequence of chapters of a book, the queue of themes when studying for an exam, the list of things we have to buy in the supermarket, etc. All in all, the chain of association method may be applied to lots of everyday situations.

4. File Cabinets Method

The file cabinets method offers a remembering capability that might appear supernatural to an average person. It enables remembering various things in a sequence in such a way that we can answer questions like "What is the fifth thing?", "And what is the eighth one?", "What is number three?" etc. If we used the same example of the queue that begins with the boat and terminates with the bottle, then if we used the chain of association method, we would have no problem to reproduce the whole queue in both directions, but we could not easily answer the question "What is the fifth object?". To answer that question we would have to go "through" the first four objects till we come to the fifth one.

The idea for the file cabinets method is to define and adopt an object for each number, upfront. For example, tv tower is the object for number 1 in [1] and pencil is the object for the same number in [2]. Obviously, both the tv tower and the pencil are similar to the shape of the number 1. The object for number 2 in [1] is swan and in [2] is sink. The swan looks like the number 2 when observed from the side and the sink has 2 knobs, it has 2 options - on and off, hot and cold, etc. The object used as number 3 in [1] is a triangle, for obvious reasons, etc. How is this used for remembering the queue? First we make an association between the boat (the first thing that is to be remembered) and the tv tower (the object assigned to number 1), then we make an association between the giraffe (the second thing that we remember) and the swan (the object assigned to number 2), then an association between the ball (the third thing) and the triangle (the object for number 3), etc. till the end of the queue. It is obvious that if we remember all the objects this way, we will have no problem to know the exact ordinal number for each of the objects. It is also obvious that we will not have limitless possibilities, like it was the case with the chain of association method - we will only have a buffer with capacity that is as large as the number of numbers we have "translated" into proper objects.

In the remainder of this section we will exhibit the objects exposed in [1] that are assigned to the first 20 numbers and explain the proper associations between the objects and the numbers. Proper pictures of the objects for each of the numbers are shown in Tables 1 and 2.

As already said the objects for the first 3 numbers are tv tower, swan and triangle, respectively.

The object for number 4 is sail, since it looks like number 4, when observed from the side.

The object for number 5 is snake, since it looks like number 5, looked from the side, when it erects its head and twists its body in the form of the letter S.

The object for number 6 is meter, as a measuring instrument, the kind that can be absorbed inwards. If a small part of it is extracted, it looks like number 6.

The object for number 7 is ax, since it looks exactly like number 7.

The object for number 8 is propeller, with 2 legs, since its shape reminds of the number 8.

The object used for number 9 is a stick, the one used by old people for walking. It reminds of the number 9 with its bent end.

The object used for number 10 is an umbrella - the stick represents the number 1, and the rounded part reminds of the number 0.

Number 11 is football (the ball used for playing soccer), since in soccer there are 11 players in each of the teams.

Number 12 is clock, since there are 12 numbers written on the clock.

Number 13 is traffic light - it has a pole, which represents the number 1, and 3 lights.

Number 14 is a windmill with 4 legs - the body represents the number 1 and the 4 legs are obvious association for the number 4.

Number 15 is a stove with a tube twisted in the form of the letter S. The body of the stove represents the 1, and the tube looks like the number 5.

Number 16 is a pipe on a one-leg stand - the one-leg stand looks like the number 1, and the pipe itself looks like the number 6.

Number 17 is harp - watched from the side it looks like the number 17.

Number 18 is violin - the neck represents the number 1, and the shape of the violin looks like the number 8.

Number 19 is a saber pulled out of the scabbard - the scabbard represents the number 1, and the saber itself looks like the number 9.

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Table 1. The First 10 Objects of the 20 Objects Queue

11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Table 2. Objects 11 To 20 of the 20 Objects Queue

Finally, number 20 are cigarettes, since there are 20 cigarettes in a pack.

In order to use this queue of objects a person should first remember well which object is assigned to which number. In [1] the reader is advised to make 20 cards, write the numbers 1 to 20 on each card, and write the proper object names on the other sides of the cards. Then, whenever you have some free time, you should go through the cards, first in order, and later randomly. You should go through the cards both looking at the objects and remembering their numbers, as well as looking at the numbers and trying to reproduce their objects. After doing this for some time, you will adopt the queue and then you will be able to use it to remember whatever you wish. For example, you could easily remember any queue of 20 objects, concepts, rules, laws etc. such that you can correctly and precisely reproduce the ordinal number for each of them in order or out of order.

Since the average person is not at all patient to persist in the task of adopting the objects queue described above, many of the people will probably not even bother to make the 20 cards, the authors of this paper have developed a proper computer application that helps in this process. In the next section we will describe this application.

5. The Application

Figure 1 shows the starting window of the application. The first option the user has to enter is whether the pictures should be changing in order or out of order. It is obvious that in the beginning the option "In order" will be chosen more often, while after some time the option "Random" will be chosen much more often. The second option determines the time interval that has to elapse when changing the numbers and the pictures. The possible values are 1s, 2s, 3s, 5s, 0.5s and 0.3s, with 1s being the default option. The last two values, 0.5s and 0.3s, are obviously not going to be used by beginners, but only by experienced users who want to really master this method. The third option determines whether the application should show first the number followed by its object picture or first the object picture followed by its number. This option is also understandable, since the user has to know both the number for each of the objects and the object for each of the numbers. Finally, the user has the option to change the picture for any of the 20 numbers, if she does not like the picture itself, or she wants to assign different object to some number. She just has to select the number for the picture that should be changed, then select the proper image file using the "Browse" button, and then simply clicks on the button "Change". The change is permanent, meaning it will still take effect after restarting the application.
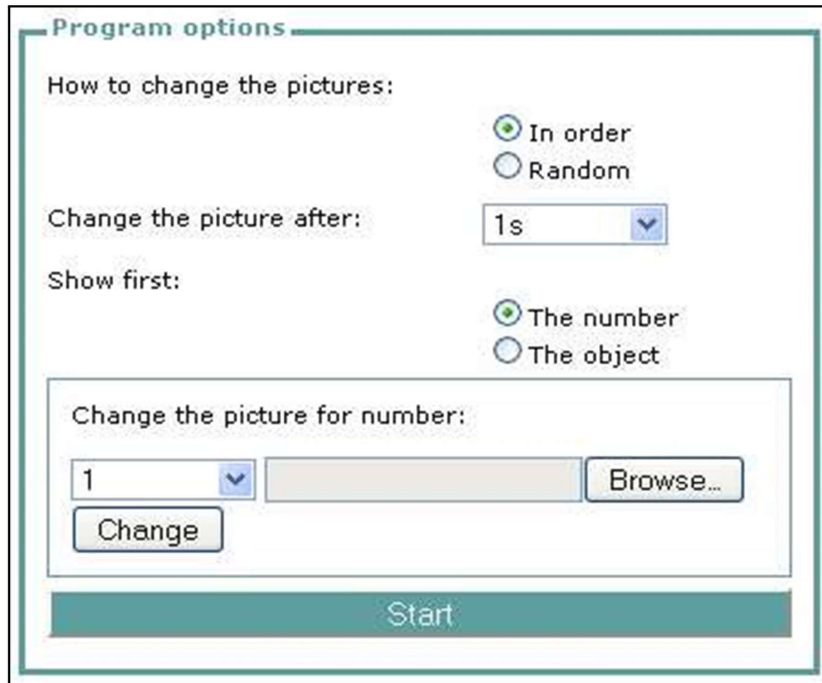

Figure 1. Starting window of the application

Figure 2. Number 1

Clicking on the "Start" button will start the displaying of the numbers and the proper object pictures, according to the selected options. This, for number 1, is shown in Figs. 2 and 3. Any time during the show the user can click on the button "Pause", which will pause the show and the button "Pause" will turn into "Continue". Clicking on the "Continue" button will continue the show. If the user wants to stop the show, she can simply click on the button "Stop", which will stop the show and display the starting window of the application.

Figure 3. Picture for number 1

6. Conclusion

In this paper we have described the basic association technique and its usage in the chain of association method and the file cabinets method. For the file cabinets method, we have developed a proper computer application that helps the user to adopt a queue of 20 objects, used as 20 file cabinets. That way the user can remember any queue of 20 things, concepts, rules, laws etc. in such a way to be able to correctly and precisely reproduce the ordinal number for each of them, in order or out of order. In the future work the authors plan to maybe increase the number of objects in the queue for this application and/or develop another application that helps the user to adopt/understand some other memory technique or method.

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