RESEARCH ARTICLE

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THE SCOUT METHOD PROTECTS THE PERCEPTION AND WORKING MEMORY OF OUR YOUNG PEOPLE AGAINST THE NEGATIVE INFLUENCE OF SOCIAL NETWORKS

Ismail Louragli[1(A,B,C,D,E,F,G)], **Yasmeen M. Taalab**[2(A,D,E)],
Youssef Aboussaleh[1(D,E,A)], **Abderrazak Khadmaoui**[3(C,D)],
Samir Bikri[1(C,E)], **Afaf Hafid**[1(E,F)], **Hajar Benmhammed**[3(E,F)],
Driss Touil[1[E,F]], **Harchaoui Hakim**[1(D,E)],
Ahmed Ahami[1(A,E,F,D)]

[1] Clinical and Cognitive Neurosciences, and Nutritional Health Team, Laboratory of Nutrition Health and Environment, Department of Biology, Ibn Tofail University, Kenitra, Morocco
[0] Institute of Forensic and Traffic Medicine, University of Heidelberg, Heidelberg, Germany
[3] Ibn Tofail University, Kenitra, Morocco

SUMMARY

Background:
Social networks are effective and easy-to-use means of communication in the modern age technology. They remarkably influence the young users' behavior being so entranced in such a virtual world which would easily develop into addiction. In this study we aim to measure the impact of addiction to Facebook on perception and working memory comparing two groups of young people, and how to protect scouting young people against this attachment or addiction.

Material/ Methods:
The study was carried out in the national center of scouting of Morocco at Ibn Tofail University on 53 master students with an average age of 24.45 years and 50 young scout leaders of Hassania Marocain scouting, who have an average age of 24.06. The educational level of these young people is between the 1st year of higher studies and the master degree. Digital test of complex Rey-Osterrieth figure and a Facebook addiction test questionnaire were used.

Results:
The comparison of the means of attachment to Facebook between the two studied groups using T-test showed significant result (t = -2.510; P = .014 <0.05) with scout leaders demonstrated higher average of attachment to Facebook than that detected by master students. The results showed a statistically significant negative correlation between the hours consumed per day on Facebook and the perception and working memory. The perception of young Scout leaders is better than that of master students.

Conclusions:
We concluded that attachment to social networks influences working memory and perception, while the Scout method would serve as a new remedy for this scourge.

Key words: addiction, internet, smartphone, youth

INTRODUCTION

Social networks become a great element in our modern-age life given to the great development in the communication technology. This era started with a category of young people representing active users in which in no time most young people showed attachment up to addiction to their touch screens or laptops however, Smartphones are the most used devices to access these networks. According to **we are Social and Hootsuite**, among 3.484 Million active social media in 2019, 3.256 Million users connect from their Smartphones which represent easier and faster tools (We are Social & Hootsuite, 2019). The addiction linked to Smartphones influences the daily life at different levels including work and study through behaviors manifest themselves by being distracted thinking all the time of these social networks with no matter how many hours been consumed surfing, browsing and searching the networks (Pantic 2014).

The current study is aim to measure the impact of addiction to social networks on neurocognitive performance. Young master degree students from Ibn Tofail University and young Scout leaders from the Hassania Moroccan Scout Association are recruited for the study. An integrated model of non-medical remedy was used to stop or reduce the behavioral addiction to virtual networks through the concept of scouting which is based on performance of multidisciplinary activities practiced in reality and to encourage the users to leave the virtual world via a famous approach called "Learning by doing" (World Scout Bureau, 1998). Such approach constitutes a social environment full of interactions between young people which transform the pleasure or the need for social attachment of young addicts from the virtual world to the real world

We emphasize on Facebook platform given to its massive use in Morocco compared to other social networks (We are Social & Hootsuite, 2019). The Rey-Osterrieth complex figure, type 'A' ROCF-A through the digital traces of the ELIAN test battery was used, to precisely detect the influence of this type of non-substance addiction on working memory and perception.

The Rey-Osterrieth complex figure RCF is a clinical neuropsychological test of neuronal activity, developed by Rey in 1941 and standardized by Osterrieth in 1944 (ROCF; Osterrieth, 1944; Rey 1941), It is evaluated: visual perception, memory, attention, working memory , the ability to construct visually in space and also to measure executive function (Shin, Park, Park, Seol & Kwon, 2006).

The purpose of this study is to measure the impact of addiction to Facebook on perception and working memory and to assess the protective effect of the scout method against such addiction to social networks.

MATERIAL AND METHOD

Participants

The study was carried out at Ibn Tofail University in Kenitra in February 2018 for first-year master students and in August 2018 for the scout leaders of the as-

sociation "Moroccan Hassania scouting" within the national center of scouting of Morocco. It is a comparative descriptive study between two groups of young people using social networks: the difference between this groups it is the practice of activities and specifically scouting which encompasses different activities. This study is carried out with a sample of 53 participants of master students with an average age of 24.45 years and 50 participants of young scout leaders, who have an average age of 24.06. The educational level of these young people is between the 1st year of higher studies and the Master.

Method
In our research, we used standard neuropsychological studies to get socio-demographic data, to evaluate perception and working memory as well as to find out the addiction to Facebook.

General questionnaire
A general questionnaire was used to identify factors related to socio-demographic data such as ,Age, Nationality, Sex, etc, and variables related to the use of social networks such as, the number of hours consumed per day, the most used tool to connect and preferable application, and factors related to education, such as: educational level, how to prepare homework and exams etc.

The Rey-Osterrieth Complex Figure Test (ROCF-A)
In our study we used the ROCF-A digital version to measure working memory through the ELIAN tool (Expert version), which is a battery of tests. This material consists of a digital pen (Anoto DP-201) contains an infrared camera and trace with the help of an exchangeable pencil lead, A woven paper (invisible to the eye) linked by a mathematical algorithm which read by the pen camera, and we
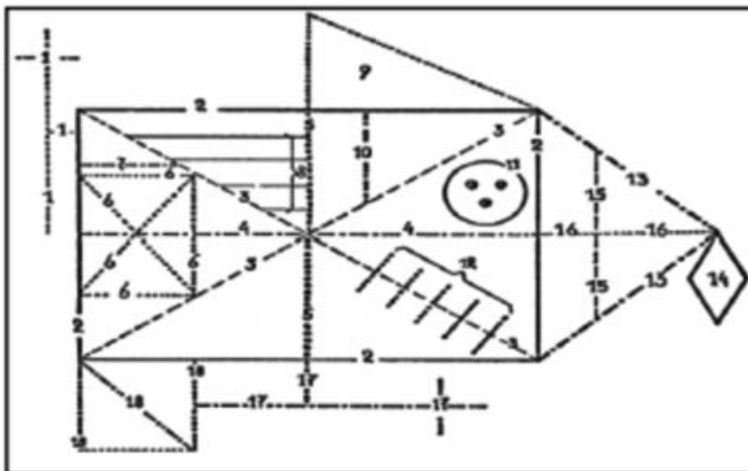

Fig. 1. Rey-Osterrieth figure in 18 Elements
Source: Mesmin and Wallon (2009)

have the ELIAN software (Expert Line Information Analyzer) developed by P. Wallon is his team (1995-2005) and allows us to give the drawing on the screen and processed, analyze and highlight the results in the form of graphs or literature and also gives us in Excel table form.

The ROCF-A test consists of two stages

The ROCF-A test consists of two steps:
- The first step: presentation of the model of the Rey-Osterrieth figure (Fig. 1) horizontally in front of the subject and clearly visible, but it is prohibited for the subject to move it or modify the position of the model, and he begins to copy the drawing on a sheet of A5 format and it takes their time in a free way.
- The second step: we remove the drawing and we turn the sheet to the blank side and we ask the subject to remain calm in the same position and after 3 min he begins to reproduce the drawing freely without time limit.

The listing is done according to two procedures, either with:
1. The numerical rating which allows to establish a score up to 72 points from the 18 elements which constitute the FCR-A, and each element noted from 0 to 4 according to these criteria:
   - correctly drawn and well placed (4 points)
   - correctly drawn and badly placed (2 points)
   - correctly drawn, well placed but imperfect (3 points)
   - distorted or incomplete but recognizable and well placed (2 points)
   - distorted or incomplete but recognizable and misplaced (1 points)
   - not recognizable or absent (0 points).
2. The rating by type: it is through the strategy and the method used by the subject to copy and reproduce the drawing, and we can determine which type among the 7 types which are determined according to Osterrieth as the following:
   - type1: construction of the structure
   - type 2: details included in the structure
   - type 3: the main lines
   - type 4: the juxtaposition of details
   - ype 5: the details on a confused background
   - type 6: reduction to a familiar pattern
   - type 7: scribbling

We use ELIAN software (Expert Line Information Analyzer) to determine the types thanks to this option which allows us to review the drawing from the first traces to identify the organization used in the phase of copying and reproduction by the subject.

Measure of Facebook addiction

The addiction to Facebook was measured by the Bergan Facebook addiction Scal BFAS test which was developed and validated by Andreassen et al. (2012), and it consists of 6 items reflect characteristics of the addiction (to knowledge,

salience, mood change, tolerance, withdrawal, conflict and relapse) (Griffiths, 2005) on a scale rated from 1 to 5, ranging from (very rarely = 1) to (very often: 5), And the scores vary between 6 and 30 points, which answered with degree 3 or more on at least four items out of the six items, named addictive to Facebook.

RESULTS

Table 1 shows socio-demographic variable of two groups have almost the same average therefore are in the same age category and also for the level of study all the participants have between the 2nd year and the master of higher studies, while for sex we have the percentage of the female workforce and more than the poor for the group of master students (Mal = 24.5%; Female = 75.5%) and the opposite for the group of young scout leaders (Mal = 62, 0%; Female = 38.0%); and for the hours consumed per day in front of the PC, Smartphone and on Facebook we always find the group of young scout leaders higher than the students of the master.

Table 2 shows a negative and significant correlation between the hours consumed on Facebook per day and the score of the working memory (r = -.198 *; P <0.05) and the perception (r = -.330 **; P < 0.001) and a significant and positive relationship with the Bergan Facebook Addiction Scale BFAS test score (r = .311 **; P <0.001), and there is no correlation with the latter and the memory score of

Table 1. Statistics of the variables

		Master Students	Scouts Leaders
Age	Mean	24,45	24,06
	SD	3,969	3,02
Gender (N ; %)	Men	13 ; 24,5%	31 ; 62,0%
	Woman	40 ; 75,5%	19 ; 38,0%
Social level (N ; %)	Better-Off	2 ; 3,8%	3 ; 6,0%
	Average	48 ; 90,6%	46 ; 92,0%
	In difficulty	3 ; 5,7%	1 ; 2,0%
Education level (N ; %)	Master	53 ; 100%	8 ; 16,0%
	Licence	-	16 ; 32,0%
	Bac+2	-	26 ; 52,0%
Laptop hours/J	Mean	1,35	2,26
	SD	1,84	3,28
Smartphone hours/J	Mean	4,32	5,17
	SD	2,87	3,40
Facebook hours/J	Mean	1,70	2,83
	SD	1,76	2,65

Table.2.Correlation between working memory, perception, attachment to Facebook and BFAS

	1	2	3	4	5
1-facebook (nbr H/D)	1				
2- perception	-,330**	1			
3- working memory	-,198*	,517**	1		
4- groups	,240*	-,561**	-,353**	1	
5- BFAS Score	,311**	-,031	-,031	,051	1

Table 3. Results of the difference in means of perception and working memory according to the types of group

	Groups	N	Mean	SD	Test t	p-value	Sign
Working Memory	Master	53	35,0755	7,96591	3,733		
	Scouts	50	29,5000	7,14071		0,000	-
Perception	Master	53	45,698	3,5496	6,501		
	Scouts	50	40,200	4,8865		0,000	+

Table 4. Results of the difference in means of perception and working memory according to the types of group

	Groups	N	Mean	SD	Test t	p-value	Sign
Facebook	Master	53	1,708	1,7689	-2,510	0,014	+
	Scouts	50	2,830	2,6546			

work and perception, So we find between these last two a significant and positive correlation (r = .517 **; P <0.01).

Verification of the hypothesis

For the verification of the hypothesis we carried out a Test of the independent T-Test samples after having the conditions of this test, and the results are as follows:

 Is there a difference between the average perception and working memory of master students and that of young scout leaders?

According to the data in Table 3 we find out that the average and the standard deviation of the working memory of master students (M = 35.0755; SD = 7.96591) and those of young scout leaders (M = 29.5000; SD = 7.14071) and according to the results of T-Test (T = 3.733) with a significance greater than 0.05 so we accept H0 and there is no difference between the means of the two groups with significance bilateral of P = 0.000 <0.05, while for the average and the standard deviation of the perception of master students (M = 45.698; ES = 3.5496) and those of young Scout leaders (M = 40.200; ES = 4.8865) and according to the results of T-Test (T = 6.501) with a significance lower than 0.05 therefore one accepts H1, there is a difference between the means of the two groups with a bilateral significance of (P = 0.000 <0.05).

According to the data in Table 4, we find that the average and the standard deviation of the hours consumed on Facebook per day of master's students (M = 1.708; SD = 1.7689) and those of young scout leaders (M = 2.830; SD = 2.6546) and according to the results of T-Test (T = -2.510) with a meaning greater than 0.05 so we accept H1, there is a difference between the means of the two groups with a bilateral meaning of (P = 0.014 <0.05).

Comparison of the means of (working memory, perception, attachment to Facebook) between master students and scout leaders is presented in Fig. 2.

The relation between Facebook Addiction Scale and the type of group is presented in Fig. 3.
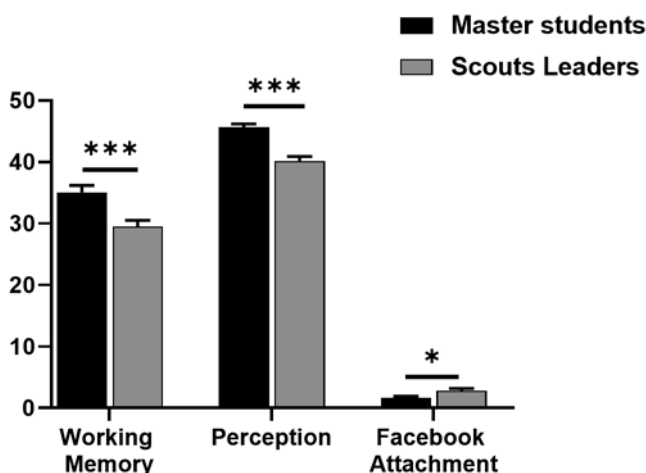
Fig.2. Comparison of the means of (working memory, perception, attachment to Facebook) between master students and scout leaders
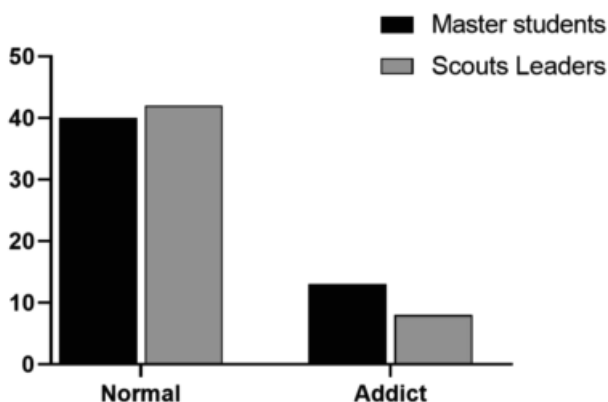Source: our own research

Fig. 3. Relation between Facebook Addiction Scale and the type of group
Source: our own research

We presented the relation between the Bergan Facebook addiction Scal (BFAS) and type of group. Moreover a chi-square test was not performed between BFAS and the type of group which gives a relationship between these two variables $\chi^2 = 1,153a$, P> .000, but we found that the group of master students was more addicted than the group of Scout leaders.

DISCUSSION

Our study focused on the objective of testing the relationship between social media addiction and their influence on memory and perception through the com-

parison of scores between two groups of young people, the first consists of 53 Master students at the Faculty of Science, Ibn Tofail University, Kenitra and the second is made up of the 50 young scout leaders of the Hassania Marocain scouting association.

As a result, we obtained a significant negative correlation between the number of hours consumed on Facebook and the memory rating (r = -0.198 *, p <0.05) and perception (r = -0.330 **, p <0.05) for all participants. Therefore, attachment to Facebook has a negative effect on working memory and perception. According to a study conducted by (Rom and Alfasi 2014) to explore the role of attachment style to social networks among adults and its consequent effect on cognition and behavior, researchers showed that attachment tendencies are associated with negative consequences on cognitive functions. While the Bergan Facebook Addiction Scale BFAS test score found a positive correlation with the hours consumed on Facebook (r = 0.311 **, p <0.001) but there was no correlation with the memory score (r = -0.31, p > 0.759) and perception (r = -0.31, p> 0.758). Study of Eroglu, 2015 examined the style of attachment and addiction to Facebook among university students showed that there is a positive relationship between the scores of attachment style and the score of addiction to Facebook. Additionally, one study that was carried out by our research unit Louragli et al. (2019) aimed to show the impact of addiction to Facebook particularly using Smartphones on the school performance and mental health, demonstrated that the BFAS test score has a positive correlation between the number of hours consumed on Facebook and a negative correlation with the general average of the 1st semester, which implies that social networks influence working memory, and in a study carried out by (Eloirdi, Ahami & Mammad, 2019) there is a positive and significant correlation between working memory and the score of the general average.

The results obtained following the comparison of the means of perception and working memory by the T-test (t = 6.501; P = .000 <0.05) demonstrated that the perception among the Scout leaders are better than those detected for the Master students. This difference might be explained on the base of using the scout method regularly (World Scout Committee, 2017) which allows scout leaders to obtain a strong performance in perception compared to master students who use the classic method learning. However, for the working memory we did not find any difference between the two groups.

The comparison of the means of attachment to Facebook between the two studied groups using T-test showed significant result (t = -2.510; P = .014 <0.05) with scout leaders demonstrated higher average of attachment to Facebook than that detected by Master Students. A chi-square test between the state of addiction to Facebook and the type of group was performed and insignificant result was obtained (χ² = 1,153a, P> .000). Even if the group of scout leaders is more attached to Facebook but it was not translated into addictive behavior, and this can be explained by the activity of scouting which protects scouts against addiction to social networks thanks to the Scout method that satisfies the social needs of practitioners and provides an ideal climate for expressing and exchanging

knowledge in a real world, which leaves no psychosocial void favorable to the use of social networks. And in a study review of 32 articles published between 2000 and 2018 on the evidence regarding internet / social media addiction and attachment style and which performed by (D'Arienzo, Boursier & Griffiths, 2019) they described that the use of Facebook meets the need for care and affection, and replaces and compensates for the missing ailments of family members, according to (Rao and Madan 2012), and the use of Facebook becomes a means of social compensation (Eroglu 2015).

And in parallel we find the number of Facebook addicts in the group of master's students and higher than that of Scout leaders.

Our results might be interpreted in acordance to the microgenetic theory of symptom formation (Brown & Pachalska 2003; Brown, 2015; Pąchalska, MacQueen & Cielebąk 2018). One of the most important factors, without a doubt, is social life variously understood, which activates and strengthening the reward system (see fig. 4).

Pleasant experiences, during the use of Facebook, release positive emotions (e.g., joy), because they stimulate the reward system by creating connections from the basal part of the frontal cortex to the anterior (emotional) part of the anterior cingulate cortex of the right and the left haemisphere. At the same time, the punishment system is weakened. The strength and duration of these emotions are associated with the importance of the event for the particular person used social media. Therefore, positive reactions of other users of Facebook, might modify the minimal (working) self, and the longitudinal (autobiographical) self, strengthening the significance of a given (negative or positive) event (see: Pachalska, 2019).

The microgenetic theory allows a better understanding of why a group of scout leaders, although more attached to Facebook, did not develop addictive behavior. The scouts method, which satisfies their social needs and provides an ideal
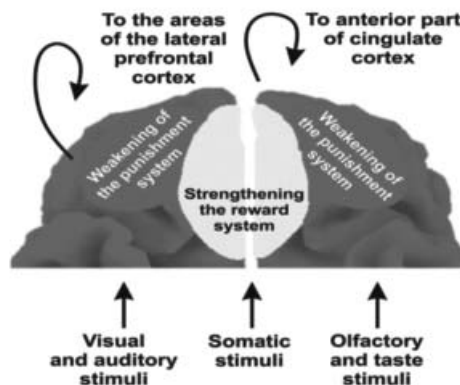

Fig. 4. The reward / punishment system and social media
Source: Pachalska 2019, modified

atmosphere for expressing and exchanging knowledge in the real world, which does not leave a psychosocial emptiness conducive to the use of social networks, strengthens the reward system and thus makes them happy. This way the Facebook becomes a means of social compensation (see also Eroglu 2015).

To sum up, in our research we shed light on a new concept that linked working memory and perception with addiction to social networks specifically the Facebook platform. The variation of attachment based on the activity performed was compared between the two studied groups of young people in which one group does not practice scouting while the other does. This opens up a new vision that "learn by doing" might be a protected tool for young people against addiction to social networks even if their degree of attachment to Facebook is higher. This also implies that the lack of family attachment and the need to be in social interactions force young people to use Social Networks to satisfy the need in a virtual world that facilitates communication in an easier way. And through this study we will focus in the future to put a model of behavioral remediation against addiction to social networks from the base of scouting activities. The problem we are addressing in this paper is new and requires wider, global research.

CONCLUSION

We concluded that attachment to social networks influences working memory and perception, while the Scout method would serve as a new remedy for this scourge.

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Corresponding author:

Ismail Louragli

Faculty of Sciences, Ibn Tofail University, Department of Biology,

Faculty of Science,Unit Clinical and Cognitive Neuroscience and Nutritional Health .

Kenitra 14000

Morocco, PB 133

E-mail: ismail.louragli@uit.ac.ma