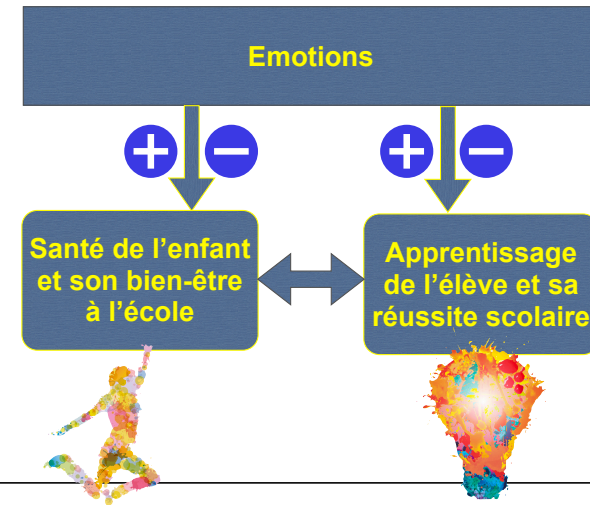


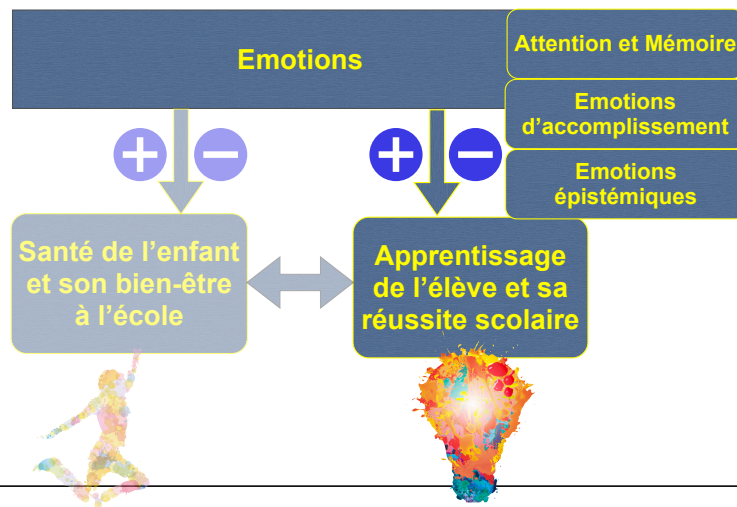
Les émotions pour faciliter les apprentissages



Message principal



Plan



Qu'est-ce qu'une émotion ?



Quelques exemples:

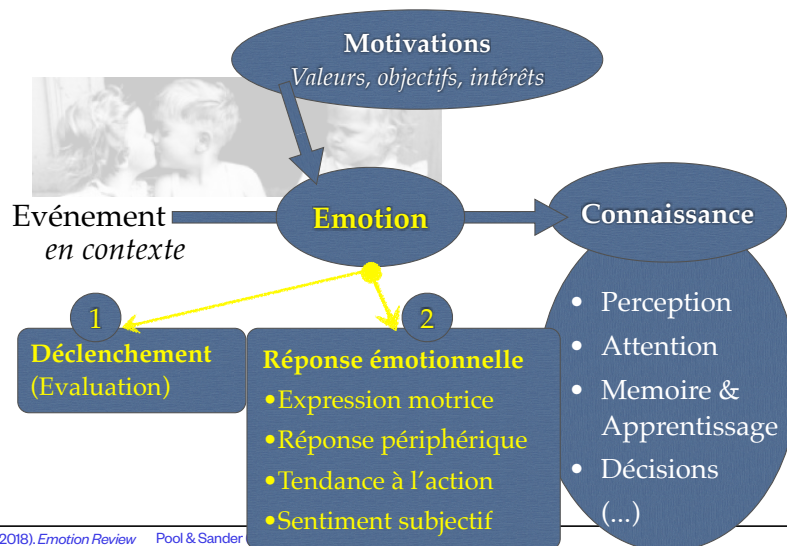
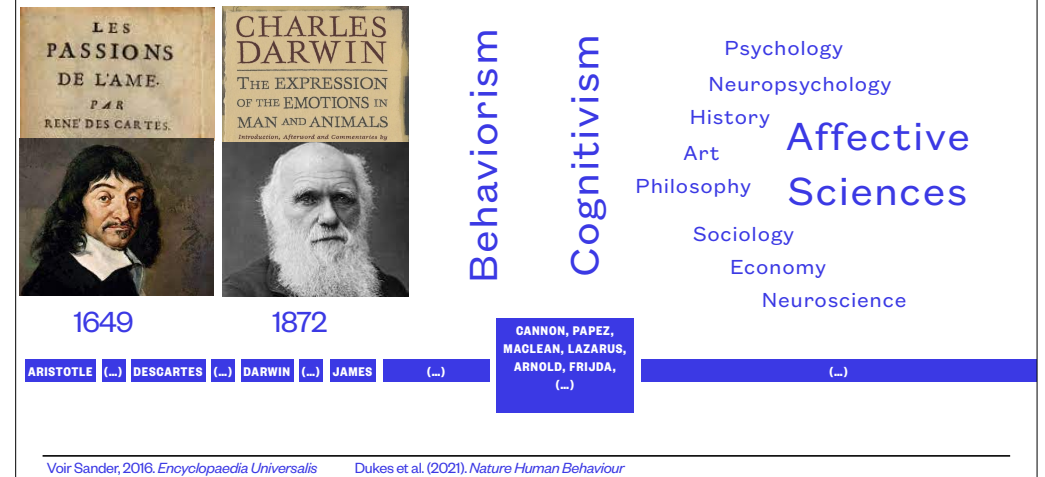
Joie, surprise, intérêt, peur, colère, tristesse, dégoût, mépris, honte, fierté, jalousie, frustration, soulagement, espoir, ennui, confusion, admiration ou encore émerveillement...

Qu'est-ce qu'une émotion ?

« Chacun sait ce qu'est une émotion,
jusqu'à ce qu'on lui demande d'en donner une définition.
A ce moment là, il semble que plus personne ne sache. »

Fehr & Russell (1984) J. Exp. Psychol.

Plus de 2500 ans d'histoire d'études des émotions



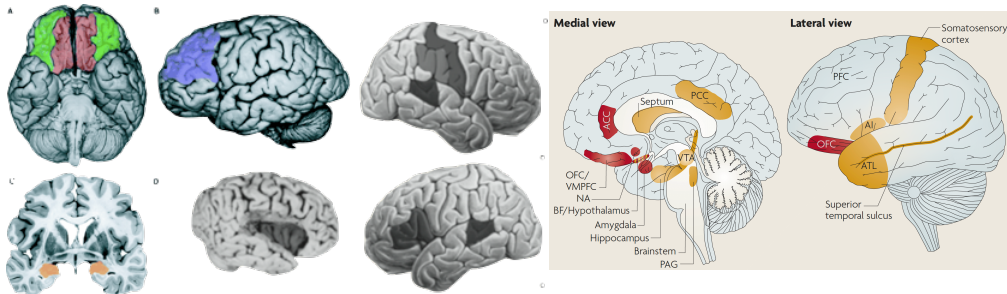
Une définition de travail pour la recherche sur l'émotion

L'émotion est un processus rapide, focalisé sur un événement et constitué de deux étapes :

- (1) un mécanisme de déclenchement basé sur la pertinence qui
- (2) façonne une réponse multiple :
 - tendance à l'action
 - réaction autonome
 - expression
 - ressenti

Source: Voir Sander, 2016, *Encyclopaedia Universalis*; Voir Sander, 2013, *Handbook of Human Affective Neuroscience*

Le cerveau émotionnel

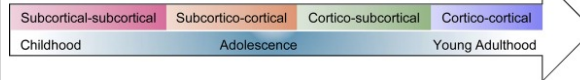
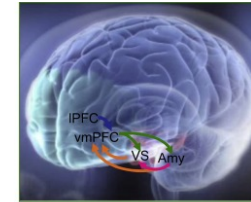


Davidson et al. (2000), *Science*

Adolphs (2008), *Ann. Rev. of Psych.*

Pessoa (2008), *Nature Rev. Neuro.*

Le cerveau émotionnel

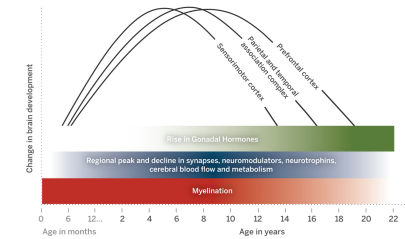


Casey et al. (2019), *Neuroscience Letters*

Lee et al. (2014), *Science*

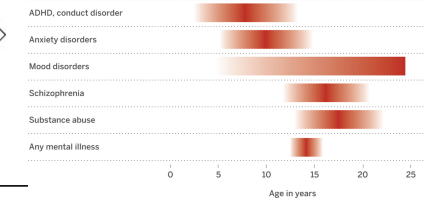
Developmental course of brain maturation during adolescence

Behavioral attributes are paralleled by hormonal and neurobiological changes that target specific brain regions and cell populations

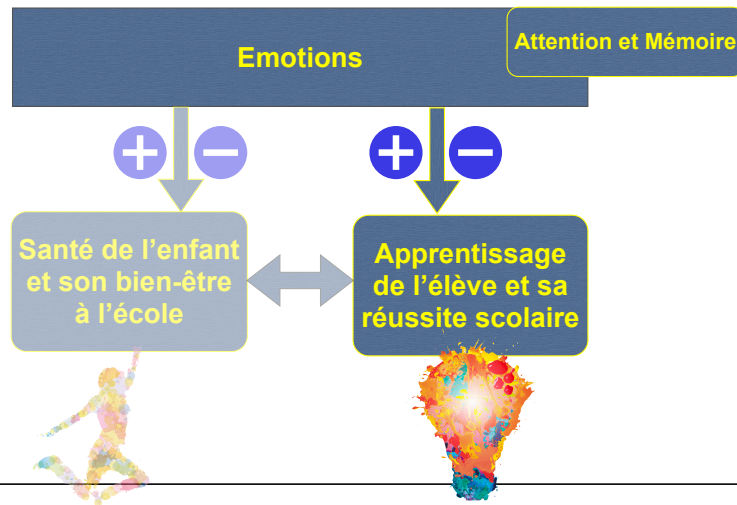


Emergence and peak in mental disorders during adolescence

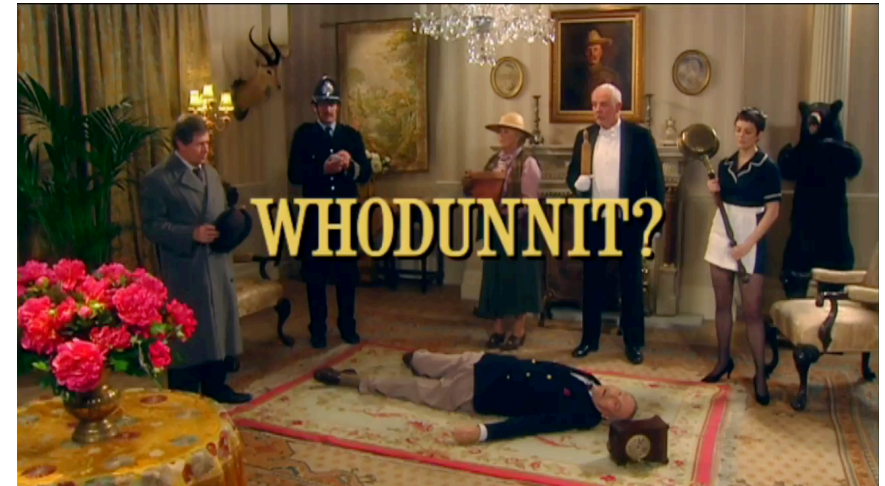
One in five adolescents have a mental illness that will persist into adulthood



Plan



Les ressources attentionnelles sont limitées



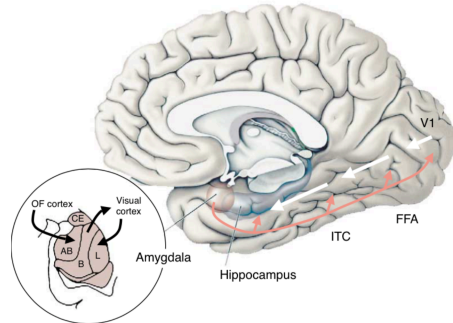
<https://www.youtube.com/watch?v=ubNF9QNEQLA>

L'attention émotionnelle (« dirigée par la valeur émotionnelle des stimuli »)

How brains beware: neural mechanisms of emotional attention

Patrik Vuilleumier

Laboratory for Neurology and Imaging of Cognition, Department of Neurosciences and Clinic of Neurology, University Medical Center, Geneva, Switzerland



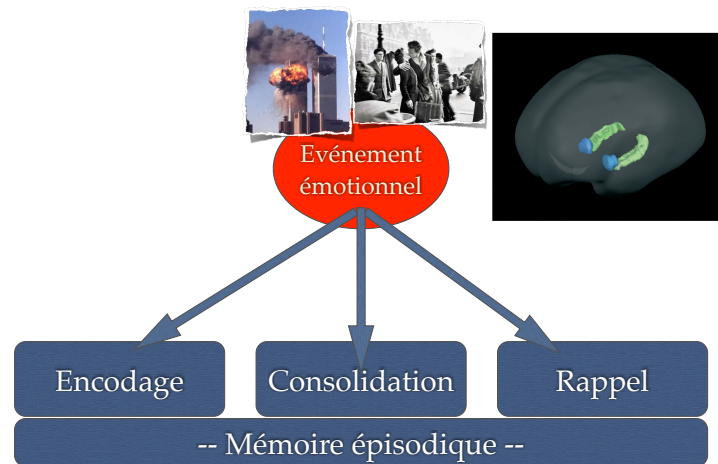
Traitement préférentiel des stimuli émotionnels grâce à un rôle précoce de l'amygdale dans la facilitation de divers processus cérébraux, dès la perception

Vuilleumier, 2005. *Trends in Cognitive Sciences*

La mémoire émotionnelle



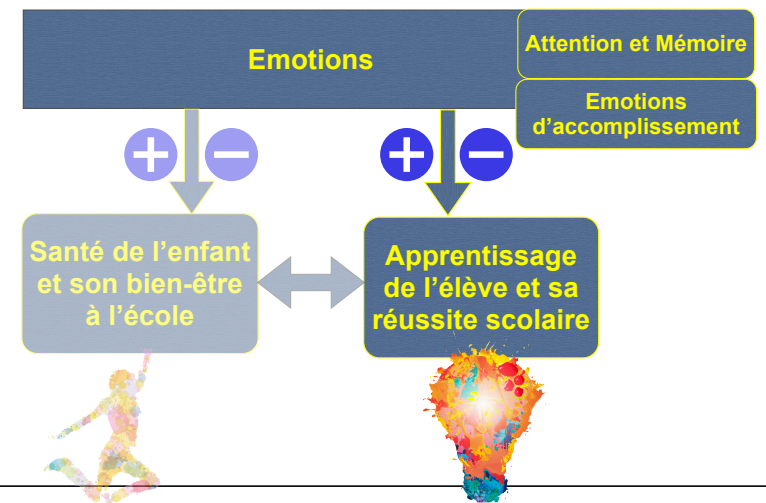
La mémoire émotionnelle



Markowitsch & Staniloiu, 2011. *Neuropsychologia*

Phelps, 2004. *Current Opinion in Neurobiology*

Plan



Les émotions d'accomplissement (*achievement emotions*)

Les émotions d'accomplissement sont les émotions associées 1) aux **activités qui mettent en jeu des compétences** ou 2) à leurs **résultats**.



P.ex., plaisir durant l'**activité**



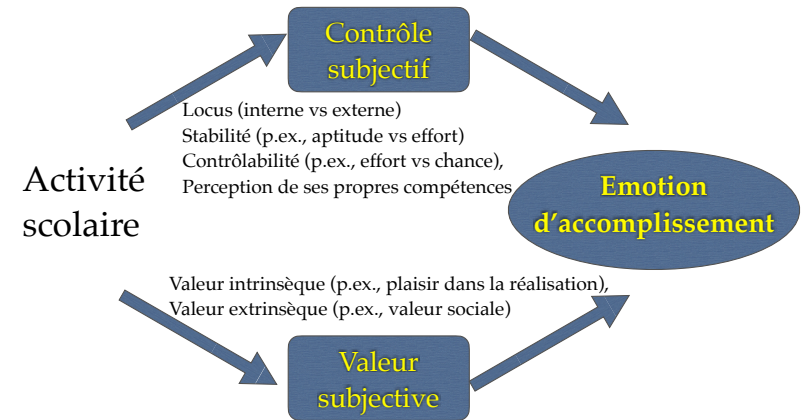
P.ex., fierté par rapport au **résultat**



Joie,
Espoir,
Fierté,
Soulagement,
Anxiété,
Frustration,
Colère,
Tristesse,
Désespoir,
Honte,
Ennui.

Travaux de Pekrun et al.

Le modèle Contrôle-Valeur des émotions d'accomplissement



Travaux de Pekrun et al.

Les émotions d'accomplissement

Emotion	Number of Studies
Joy / Enjoyment	61
Enthusiasm	16
Hope	9
Relief	3
Pride	27
Gratitude	3
Admiration	0
Sadness	15
Anger	64
Anxiety	> 1,000
Hopelessness	14
Shame / Guilt	44
Disappointment	2
Boredom	43
Envy	6
Contempt	0
Surprise	7

Travaux de Pekrun et al.

Effets sur la motivation et l'effort subjectif

	Intrinsic Motivation	Effort
Enjoyment	.56	.43
Pride	.30	.34
Anxiety	-.14	-.19
Shame	-.18	-.11
Hopelessness	-.33	-.24
Boredom	-.35	-.50

Pekrun et al. (2011). *Contemporary Educational Psychology*

Effets sur les performances scolaires

CHILD DEVELOPMENT

Child Development, September/October 2017, Volume 88, Number 5, Pages 1653–1670

Achievement Emotions and Academic Performance: Longitudinal Models of Reciprocal Effects

N = 3,425 étudiants en Allemagne.

Classes équiv. Cycle à Genève, suivi sur 5 ans des élèves (Grades 5–9, âge moyen au début de l'étude 11.7 ans)

Table 1

Sample items and alpha reliabilities for the emotion scales

Emotion	Sample item	Number of items	α
Enjoyment	I enjoy my math class.	9	.87
Pride	I am proud of my contributions to my math class.	8	.87
Anxiety	When taking the math test, I worry I will get a bad grade.	15	.90
Hopelessness	During the math test, I feel hopeless.	6	.86
Shame	I am ashamed that I cannot answer my math teacher's questions well.	6	.86

Pekrun et al. (2017). *Child Development*.

Effets sur les performances scolaires

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Achievement Emotions and Academic Performance: Longitudinal Models of Reciprocal Effects

	Grade Level				
	5	6	7	8	9
Enjoyment	.20	.25	.34	.41	.45
Pride	.18	.22	.29	.36	.38
Anxiety	-.37	-.38	-.37	-.37	-.40
Shame	-.33	-.34	-.29	-.29	-.29
Boredom	-.12	-.09	-.15	-.15	-.22
Hopelessness	-.37	-.37	-.39	-.39	-.45

Note. $p < .001$ for all coefficients. **Corrélations Emotions/Notes**

Pekrun et al. (2017). *Child Development*.

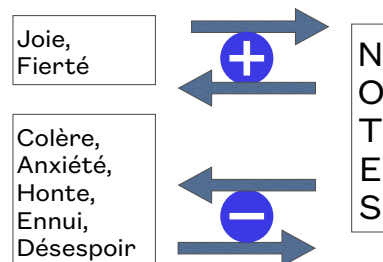
Effets sur les performances scolaires

CHILD DEVELOPMENT

Child Development, September/October 2017, Volume 88, Number 5, Pages 1653–1670

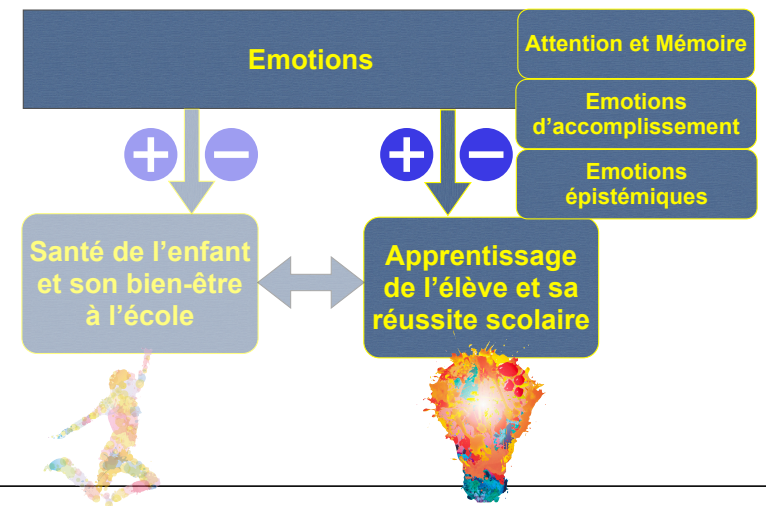
Achievement Emotions and Academic Performance: Longitudinal Models of Reciprocal Effects

Suggère des effets **réciroques** émotions \leftrightarrow réussite scolaire



Pekrun et al. (2017). *Child Development*.

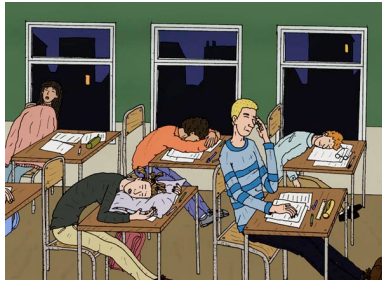
Plan



Les émotions épistémiques

Les émotions épistémiques ont pour objet la **connaissance**
Elles sous-tendent le niveau de motivation à explorer et à apprendre :

P.ex.,
Intérêt / curiosité,
Surprise,
Émerveillement,
Admiration,
Confusion,
Ennui,
Frustration.



Passion et réussite scolaire d'élèves de 15 ans

Passion matters but not equally everywhere: Predicting achievement from interest, enjoyment, and efficacy in 59 societies

Xingyu Li^{1,2}, Miaozhe Han³, Geoffrey L. Cohen^{4,5}, and Hazel Rose Markus^{1,2}

¹Graduate School of Education, Stanford University, Stanford, CA 94305; ²School of Business, The Chinese University of Hong Kong, Shatin, Hong Kong 999077; and ³Department of Psychology, Stanford University, Stanford, CA 94305

Contributed by Hazel Rose Markus, December 31, 2020 (sent for review October 21, 2020; reviewed by Steven J. Heine and Jackson G. Lu)

How to identify the students and employees most likely to achieve is a challenge in every field. American academic and lay theories alike highlight the importance of passion for strong achievement. Based on a Western independent model of motivation, passionate individuals—those who have a strong interest, demonstrate deep enjoyment, and express confidence in what they are doing—are considered future achievers. Those with less passion are thought to have less potential and are often passed over for admission or employment. As academic institutions and corporations in the increasingly multicultural world seek to acquire talent from across the globe, can they assume that passion is an equally strong predictor of achievement across cultural contexts? We address this question with three representative samples totaling 1.2 million students in 59 societies and provide empirical evidence of a systematic, cross-cultural variation in the importance of passion in predicting achievement. In individualistic societies where independent models of motivation are prevalent, relative to collectivistic societies where interdependent models of motivation are more common, passion predicts a larger gain (0.32 vs. 0.21 SD) and explains more variance in achievement (37% vs. 16%). In contrast, in collectivistic societies, parental support predicts achievement over and above passion. These findings suggest that in addition to passion, achievement may be fueled by striving to realize connectedness and meet family expectations. Findings highlight the risk of overweighting passion in admission and employment decisions and the need to understand and develop measures for the multiple sources and forms of motivation that support achievement.

attributes as the source of normatively good behavior (10–14). This cultural model is reflected in a dense web of mutually constituting values, ideas, institutional practices, interactional norms, and personal beliefs. According to this independent model of motivation, if I pursue a path consistent with my passion—that is, if I pursue something that I enjoy, that interests me, and for which I have a sense of self-efficacy—I will be motivated and do it well. The reverse is also true: If I do something very well, it is because I like it, I enjoy doing it, and I am efficacious at it (15). Consistent with this view, Falk, Dunn, and Norenzayan (16) found that expected enjoyment was a stronger predictor for decisions about which courses to take among people with more independent selves.

Research from multiple disciplines in Western societies across decades converges on the finding that students who self-report strong “interest,” “enjoyment,” and “confidence” toward learning—often labeled “passionate” students—tend to achieve higher levels than their peers who report fewer of those traits (12, 17–20). As a result, in many schools in North America, especially those in middle- or upper-class communities, teachers, parents, and school policies emphasize not only effort and hard work but also the importance of helping students find their passion. Developing interests, experiencing enjoyment, and gaining

Significance

In three large-scale datasets representing adolescents from 59

Liet al. (2021). PNAS

- 1.2 million d'élèves de 15 ans dans 59 sociétés
- La passion qu'un élève déclare avoir pour une matière prédit significativement sa réussite dans la matière (Sciences, Math et Lecture) lors du test PISA
- Mais cette relation dépend du niveau d'individualisme de la culture

Effet de la curiosité sur la mémoire

The Wick in the Candle of Learning

Epistemic Curiosity Activates Reward Circuitry and Enhances Memory

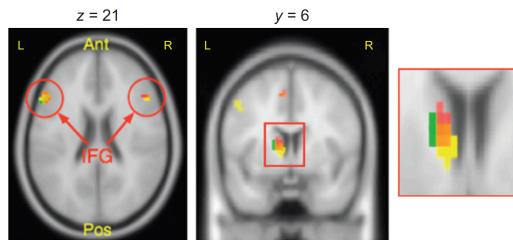
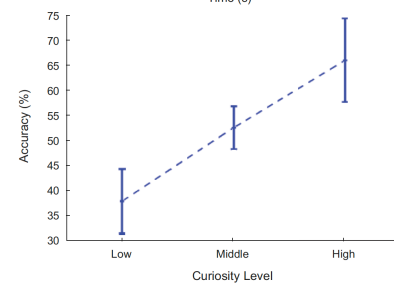
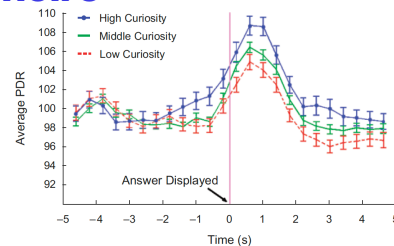


Fig. 2. Brain regions that showed differential activity in high- versus low-curiosity trials during the first question presentation in Experiment 1 ($p < .001$ uncorrected, $p_{\text{cor}} > .99$, extent threshold ≥ 5). Colored areas showed greater activation on high-curiosity trials in the median-split analysis (red), the mediator analysis (yellow), and the analysis of residual curiosity (green). The illustration at the right is a close-up view of the overlapping caudate activations. Ant = anterior; Pos = posterior; L = left; R = right; IFG = inferior frontal gyrus.

Kang et al., 2009, Psychological Science



Comment susciter l'intérêt ?

- Contagion émotionnelle
- Structure d'appraisal de l'intérêt
- Le modèle du développement de l'intérêt en 4 phases
- Trois types d'interventions en contexte scolaire
 - Personnalisation du contexte
 - Choix / autonomie
 - Valeur d'utilité

Contagion émotionnelle

Vous faites quoi
pour qu'il lise un
livre ?



Combinaison de trois évaluations (*appraisals*)

• L'intérêt est une émotion qui est typiquement déclenchée par un événement **évalué** comme étant :

• **Nouveau**

ET

• **Complexe**

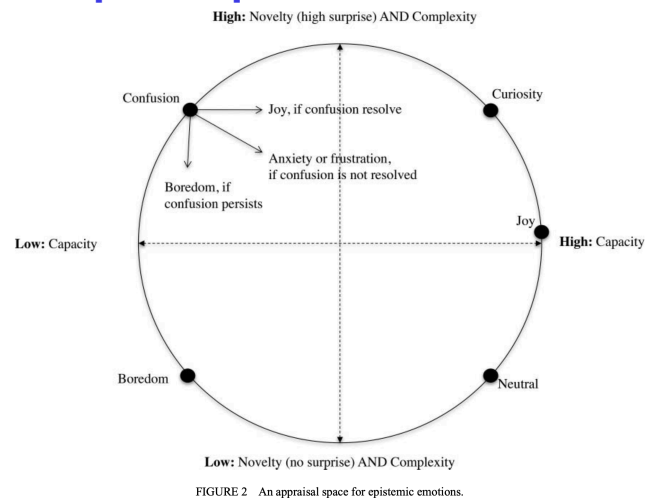
MAIS

• **Compréhensible**

Silvia, 2005. *Emotion*

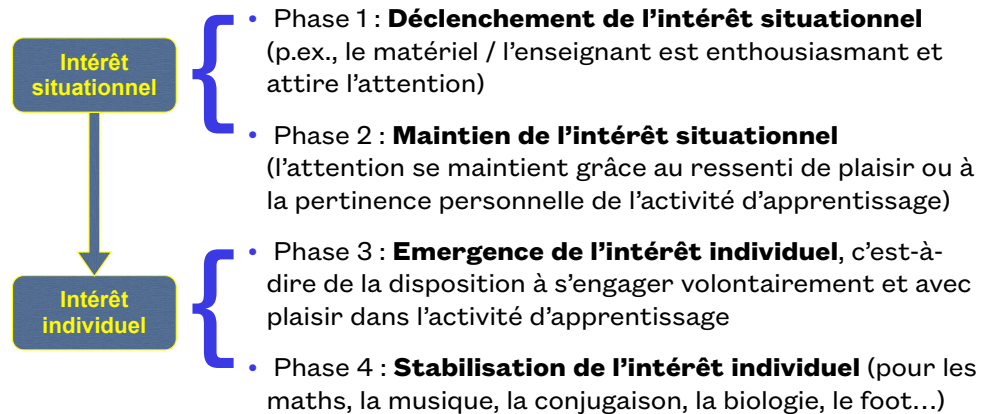
Silvia, 2008. Interest, the curious emotion. *Current Directions in Psychological Science*

Les émotions épistémiques



Muis et al., 2018. *Educational Psychologist*

Le modèle en 4 phases du développement de l'intérêt chez les élèves



Travaux de Hidi & Renninger

Trois types d'interventions scolaires pour augmenter l'intérêt

- **Personnalisation du contexte**

Par exemple en incluant des détails personnels dans le cadre de la tâche à réaliser (p. ex., le nom de l'élève, sa date de naissance, ses préférences du moment).

- **Donner aux élèves des choix d'apprentissages**

Par exemple, le fait de pouvoir choisir une activité permet de renforcer le sentiment d'autonomie et de contrôle, ainsi que l'intérêt pour la tâche réalisée.

- **Encourager la pertinence personnelle**

Par exemple, certaines interventions augmentent la « valeur d'utilité » d'un apprentissage en demandant aux élèves de rédiger un texte concernant la pertinence de ce qui doit être appris pour leur vie actuelle ou pour leur carrière potentielle.

Reber et al., 2018. *Current Directions in Psychological Science*

Qui choisit l'exercice ? Réalisation d'anagrammes par des enfants

Animaux Fêtes San Francisco Famille Maison Nourriture

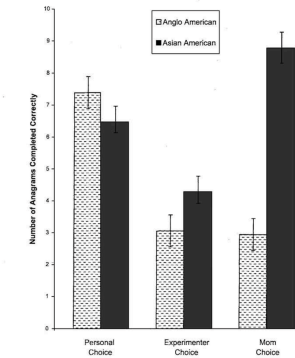


Figure 1. Measure of performance in Study 1. Mean number of anagrams completed correctly by experimental condition, out of 13 possible. Bars represent means, and lines represent standard errors.

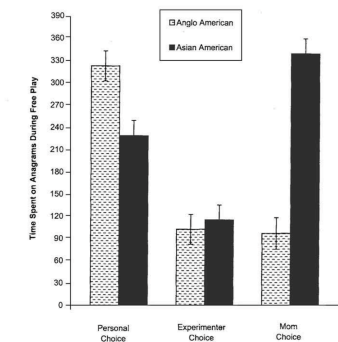


Figure 2. Measure of intrinsic motivation in Study 1. Mean time spent on anagrams during a free-play period by experimental condition. Scores are in seconds, out of a possible total of 360 s. Bars represent means, and lines represent standard errors.

Iyengar & Lepper (1999). *JPSP*

Intervention de « pertinence personnelle » (valeur d'utilité)

Promoting Interest and Performance in High School Science Classes

Chris S. Hulleman^{1*} and Judith M. Harackiewicz²

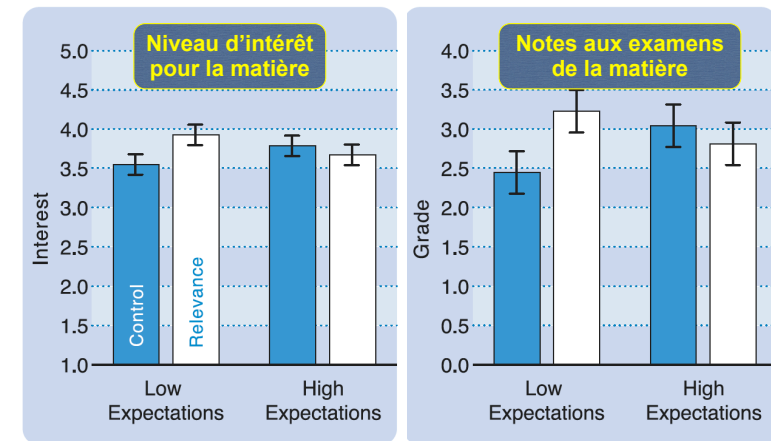
We tested whether classroom activities that encourage students to connect course materials to their lives will increase student motivation and learning. We hypothesized that this effect will be stronger for students who have low expectations of success. In a randomized field experiment with high school students, we found that a relevance intervention, which encouraged students to make connections between their lives and what they were learning in their science courses, increased interest in science and course grades for students with low success expectations. The results have implications for the development of science curricula and theories of motivation.

4 DECEMBER 2009 VOL 326 SCIENCE www.sciencemag.org

-> randomized controlled field experiment

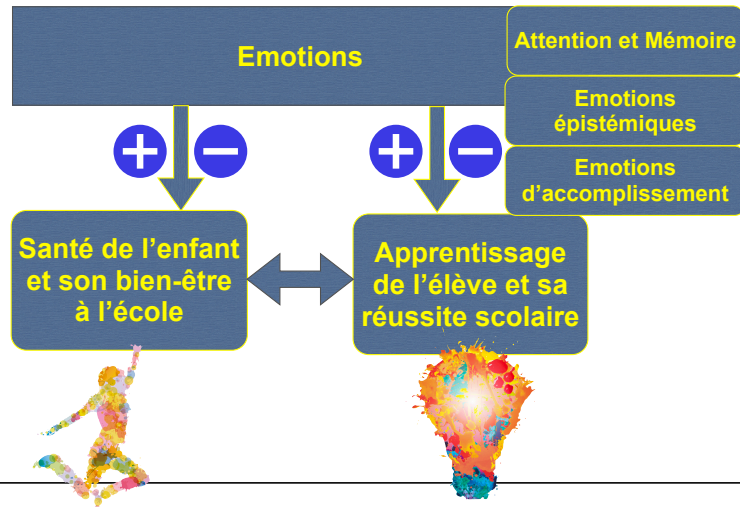
Hulleman & Harackiewicz, 2009. *Science*

Intervention de « pertinence personnelle » (valeur d'utilité)



Hulleman & Harackiewicz, 2009. *Science*

Conclusion



Message principal

L'enseignement gagne à intégrer, dans sa conceptualisation et dans ses pratiques, les émotions et les compétences émotionnelles des élèves

Merci de votre intérêt !

