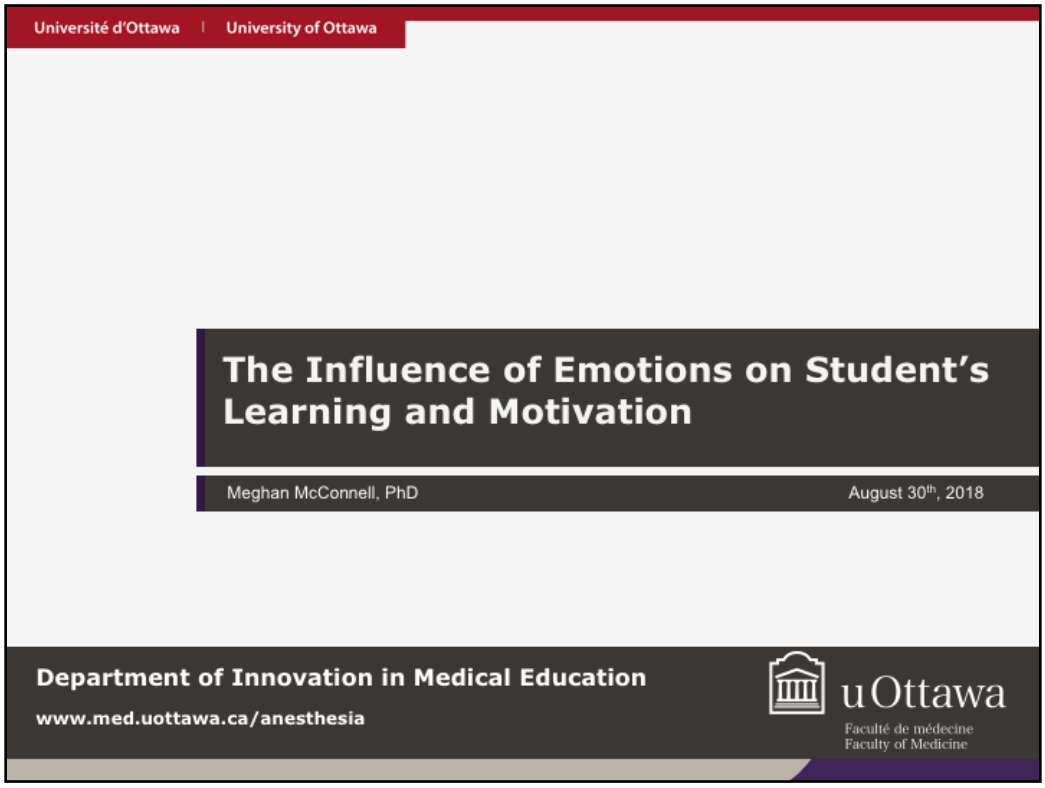
Université d'Ottawa | University of Ottawa
The Influence of Emotions on Student's Learning and Motivation
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August 30th, 2018
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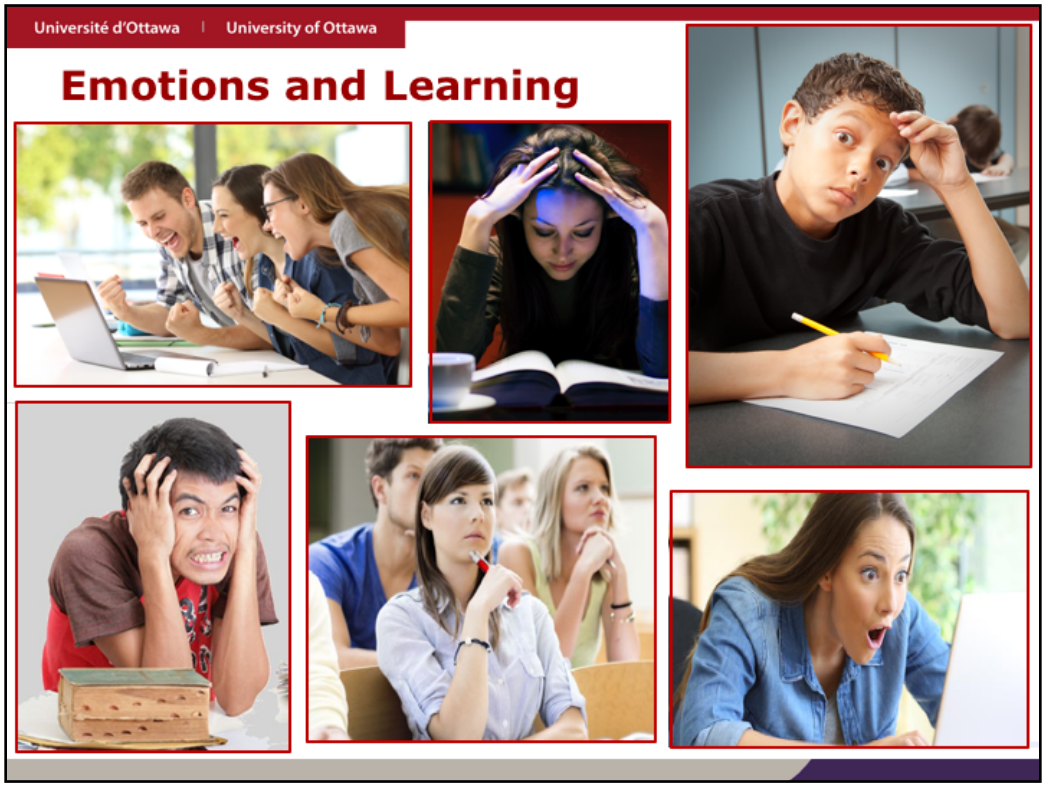


Learning – whether its online or in a classroom setting - evokes a wide range of emotions

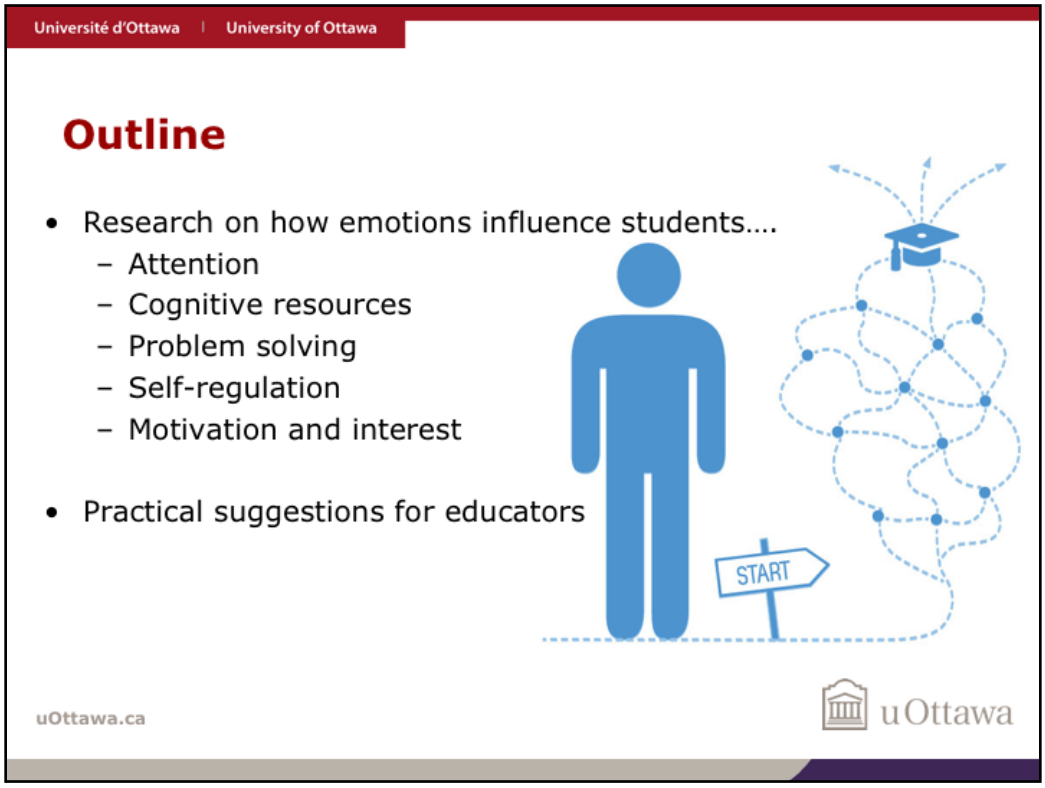
Some of these emotions originate in the educational environment. For example, students may feel…

> Excited during studying, hopeful for success, proud of their accomplishments, be surprised at discovering a new solution, anxious about failing an exam, ashamed over poor grades, or be bored during lessons.

Other emotions may be brought into the classroom from life outside of school, but can nevertheless have a strong influence upon their learning, such as stress due to family issues

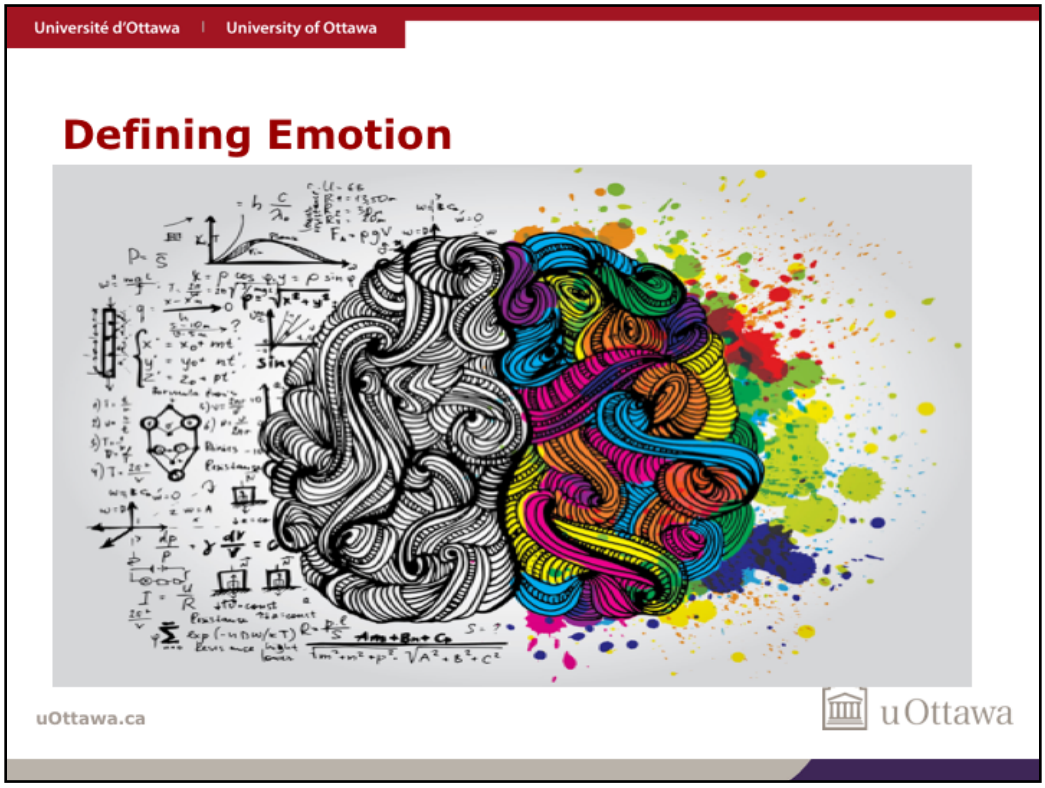
Regardless of the source of the emotions, they can have important effects on students' learning and achievement.

And this is what I'm going to talk about today.



The purpose of this presentation is to describe some of the research on how emotions influence students' attention, their cognitive resources, their approach to solving problems, their self-regulation of learning, and their motivation to learn

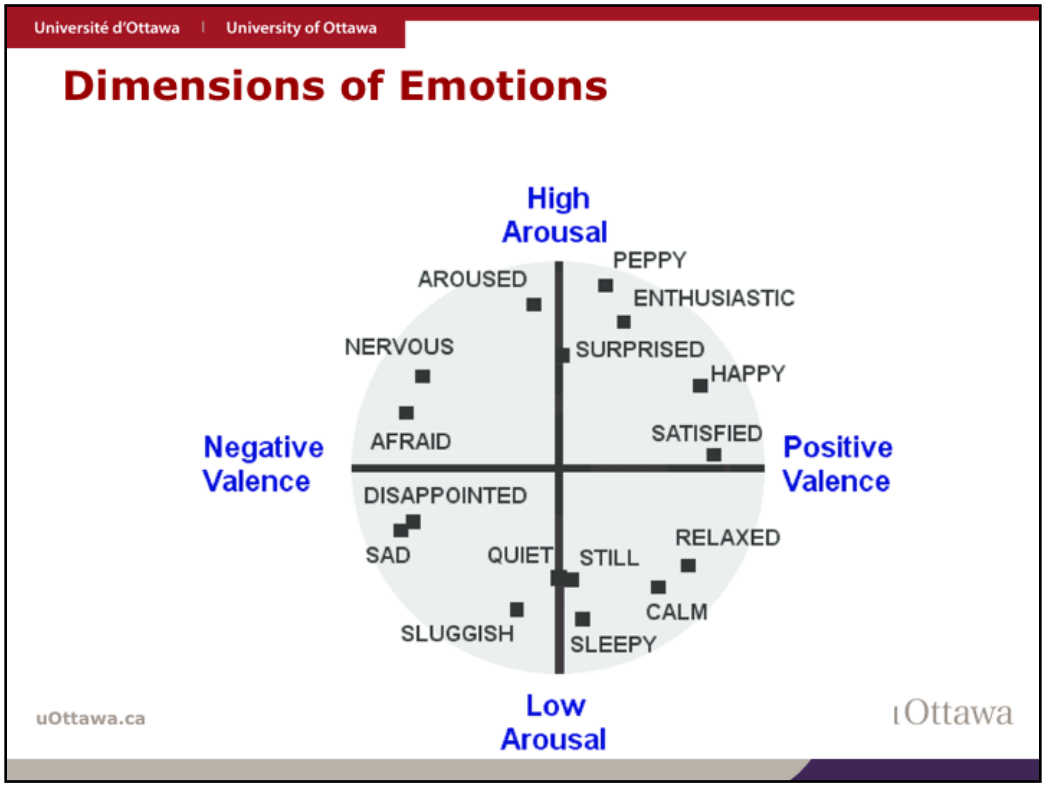
From these discussions, I provide some practical suggestions for how teachers can understand students' emotions and what they can do to help students develop emotions that promote learning and development, and prevent emotions that are harmful.



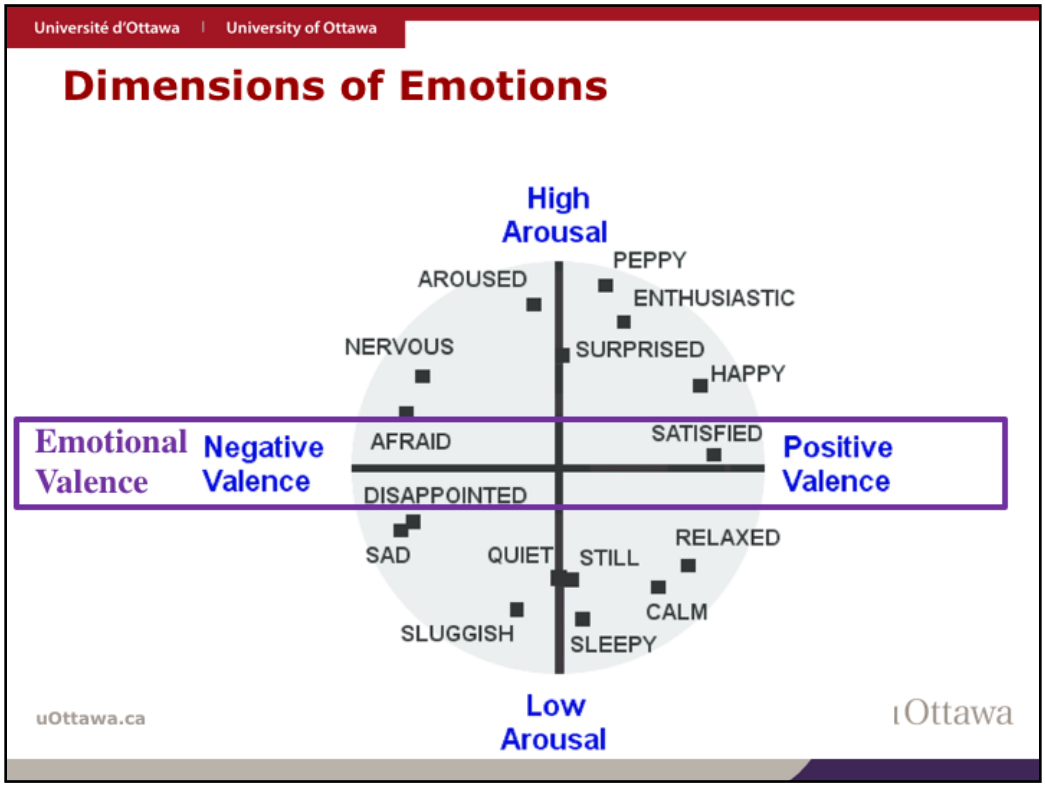
Before getting started, let's first discus what emotion is

Emotions are somewhat difficult to define and have conceptualized a variety of ways, such as emotions, mood, affect, feelings. Differentiating between these terms is beyond the scope of this presentation – there are literally books written on this!

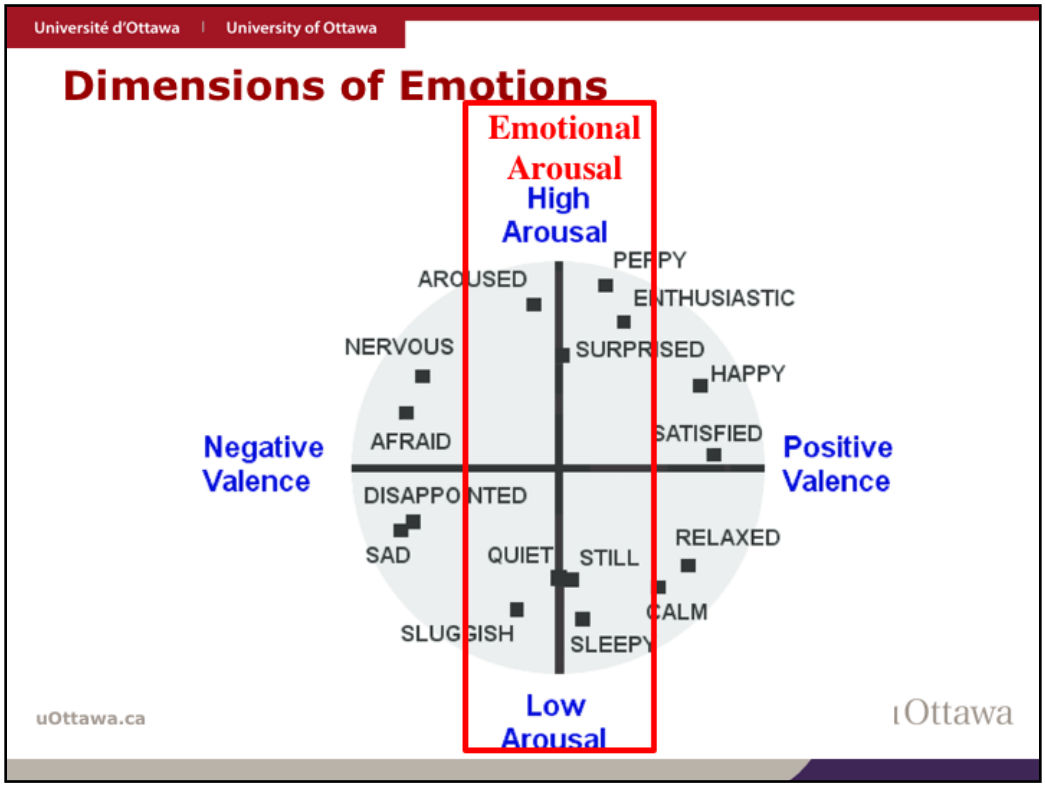
In this presentation, I'm using the term *emotion* in its most general sense – to refer to affective content, states, and experiences



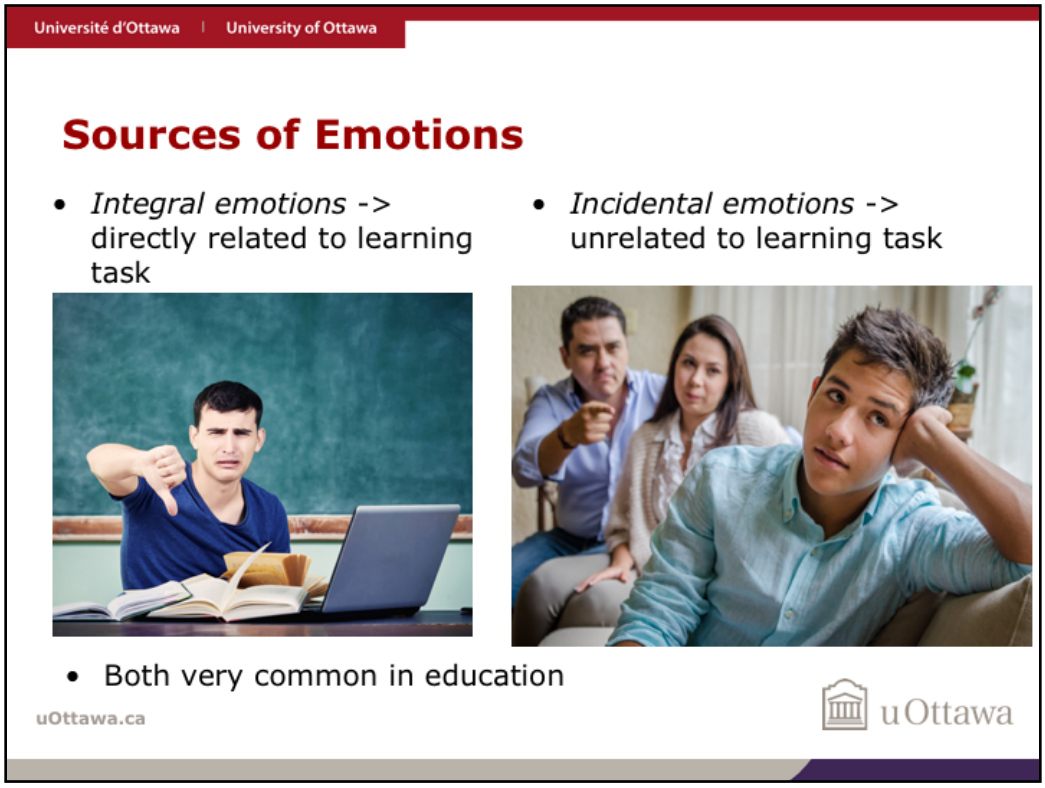
And while researchers have debated how best to define emotions, they generally agree that emotions vary along two dimensions – valence and arousal



Valence (which is a term borrowed from chemistry) refers to the extent to which an emotion is perceived as being positive or negative, pleasant or unpleasant, good or bad. Valence is often the defining feature of how we describe emotions (eg, "in a good mood")



Arousal refers to the extent to which an emotion is experienced as high or low arousal and is often linked to varying levels of physiological arousal



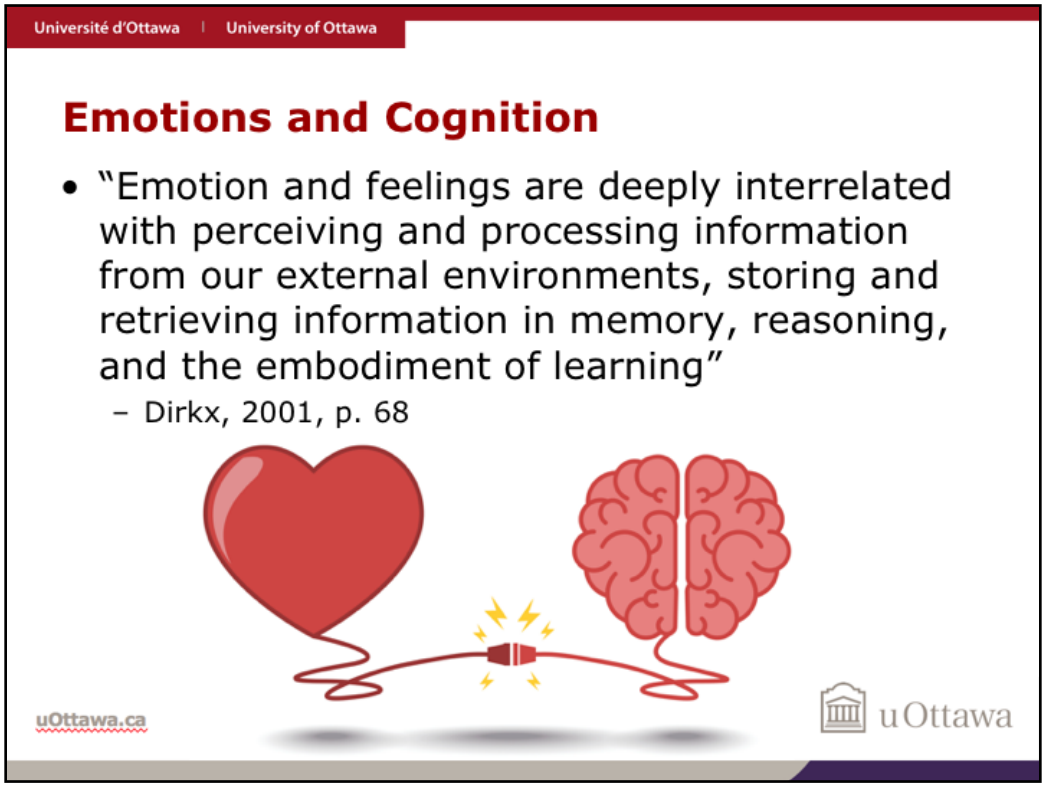
The distinction between incidental and integral emotions are important in education settings, as both are quite prevalent

In contrast, *integral* affective states are directly related to the task

> For example, the frustration that arises form an unclear explanation on an online message board
>
> Here, the emotion is induced by the event, and thus, is integral to the learning experience.

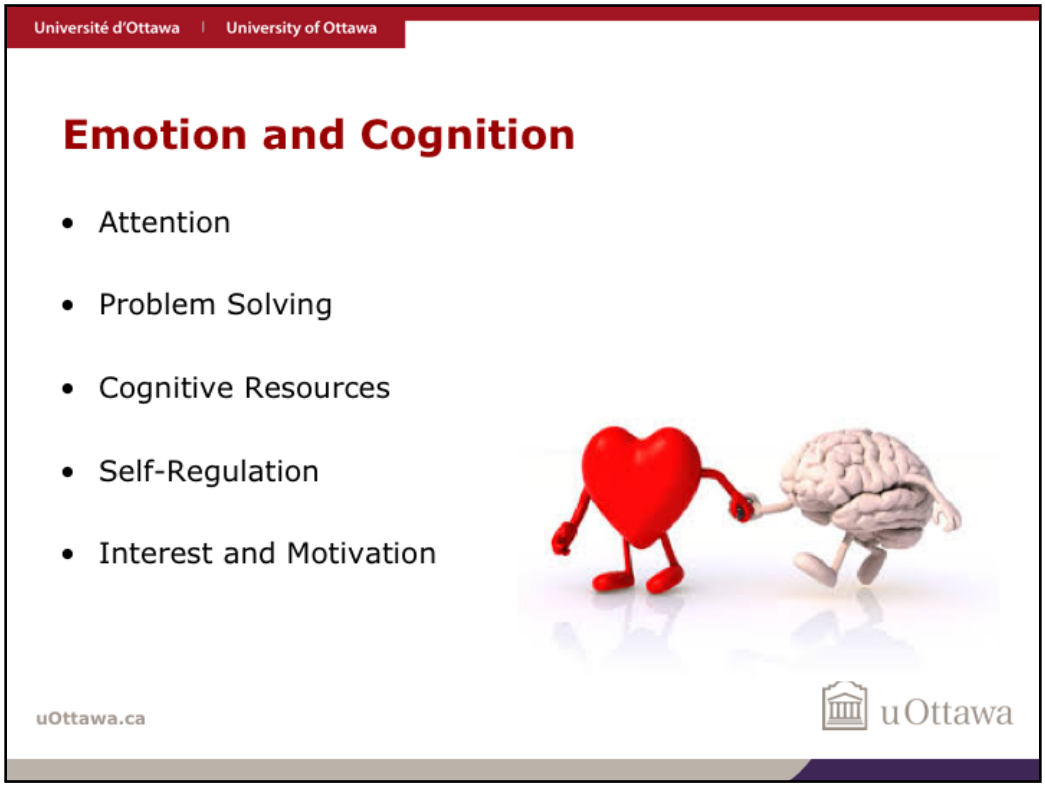
Incidental emotions are derived from a source that is unrelated to the task.

> For example, if one is trying to study geometry, incidental emotions can include frustration from an earlier confrontation with the students family members

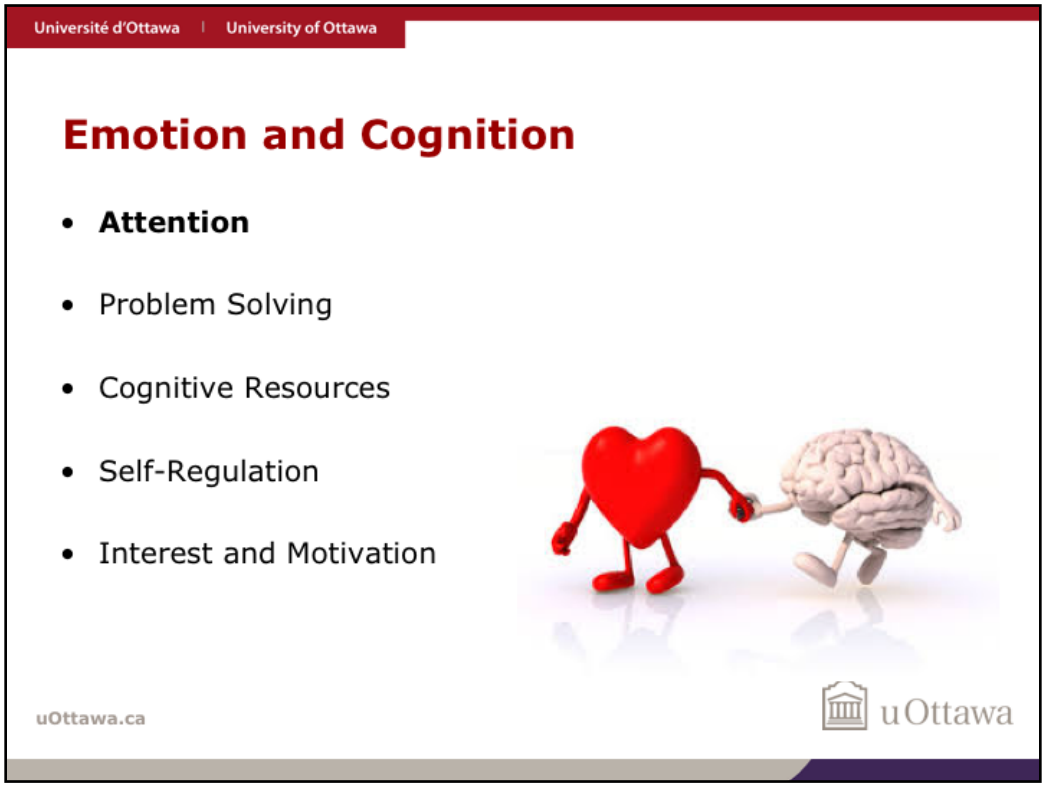


Within cognitive psychology, the link between cognition and emotions has been the subject of considerable theoretical and empirical research over the past 15 years.

As Dirkx states, …

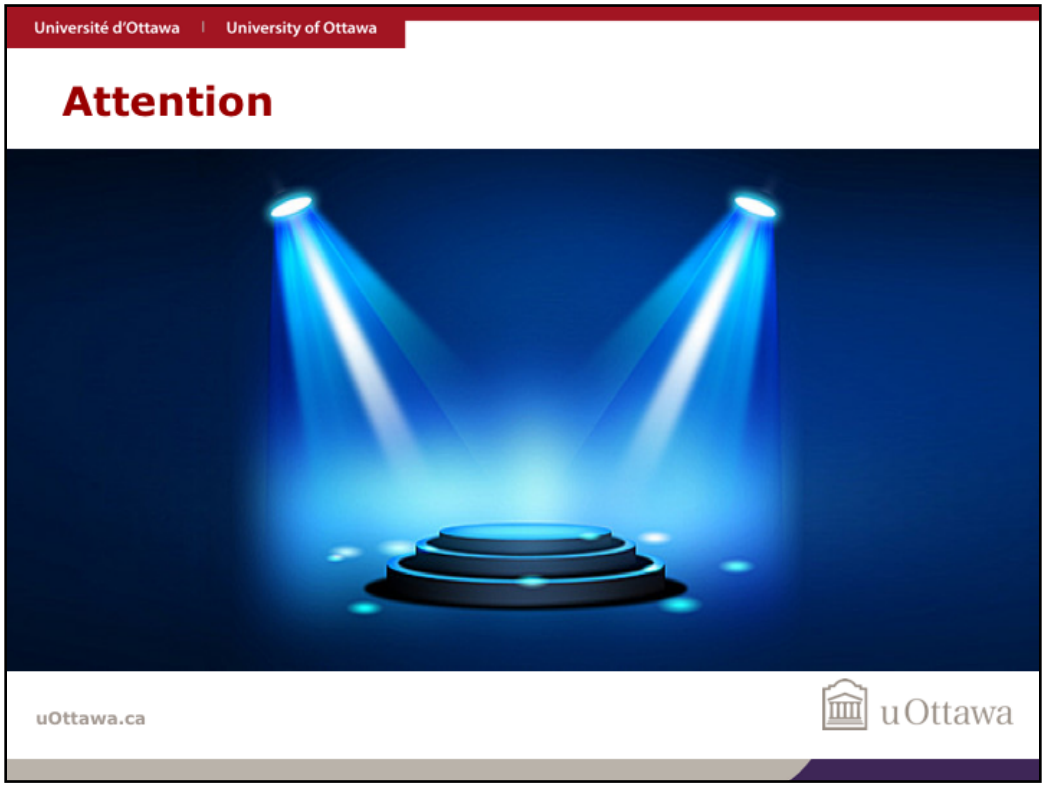


Most researchers consider emotions to influence learning and performance along five general routes: Attention and perception, problem solving and learning strategies, cognitive resources, self-regulation, and interest/motivation



Individuals perceive and process information in multiple ways, and emotion has been shown to have considerable influence on what individuals pay attention to

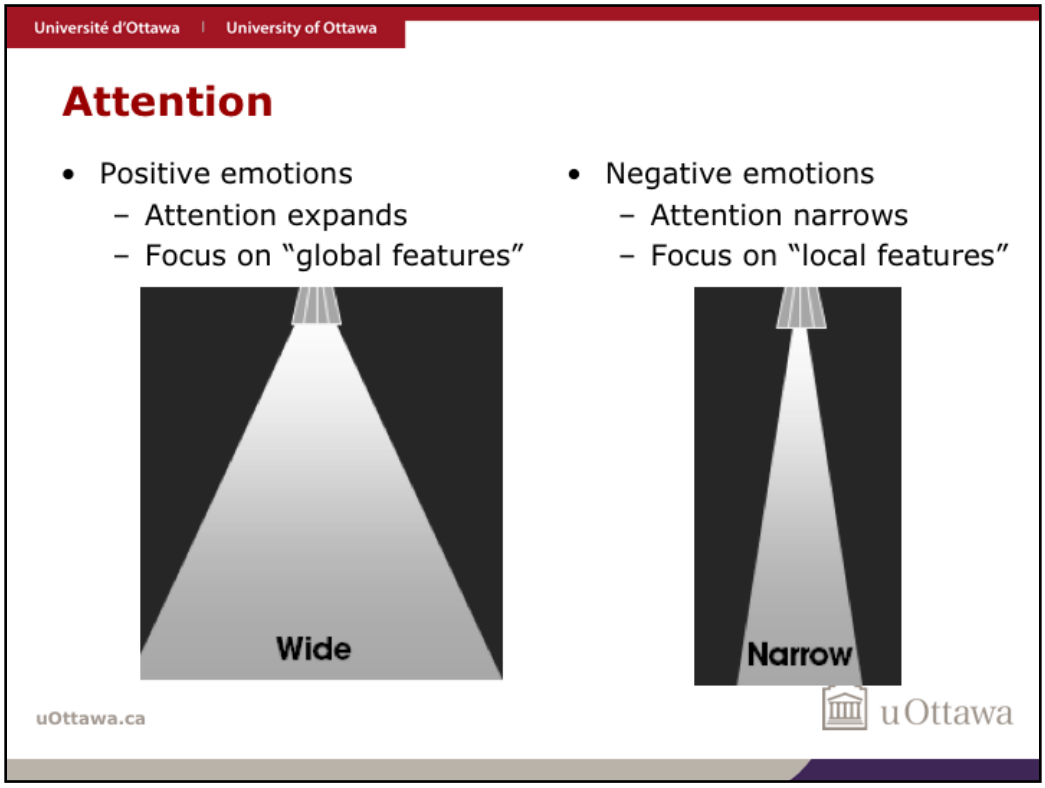
This is very important in the context of learning environments, because it's hard to learn something if you're not paying attention to it



Within cognitive psychology, we often use the analogy of a "spot light" when we're talking about attention. Attention can be moved around the environment, it can be narrowed to focus on something specific, or broadened to focus on the larger scene

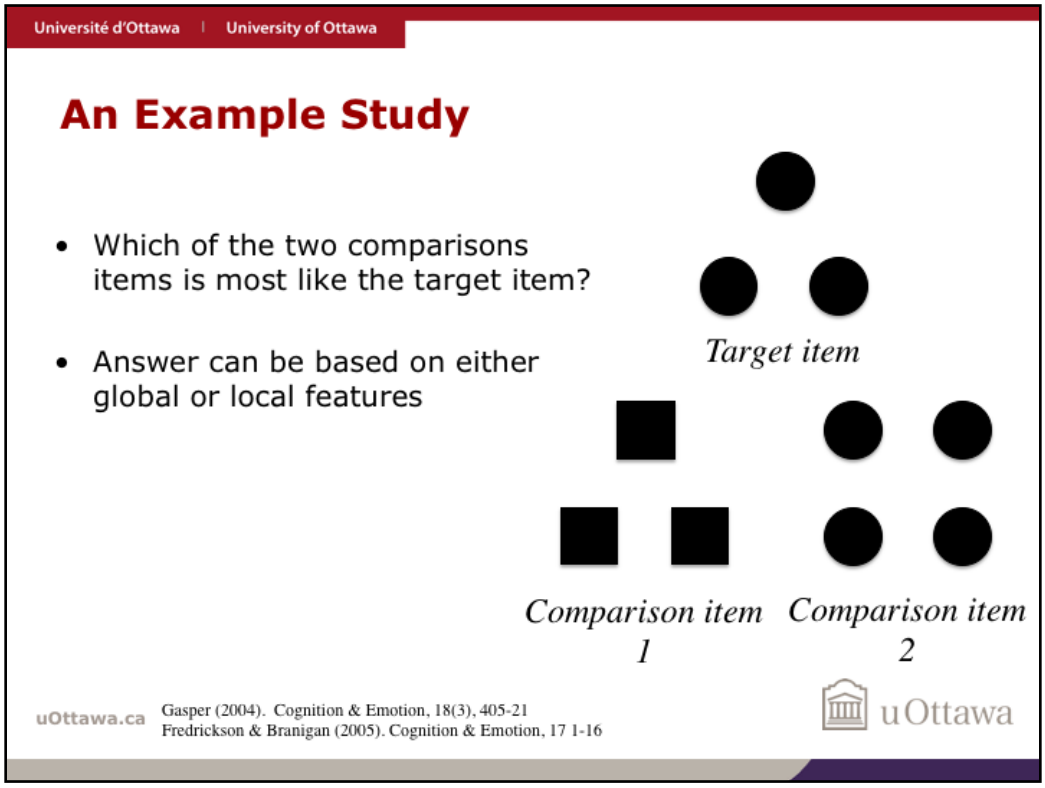
As the scope of attention expands, more of the visual scene is taken in, drawing attention to the global features of the scene, whereas a narrowed focus results in missing the big picture and noticing local details instead

There is plenty of research showing that emotions influence attention



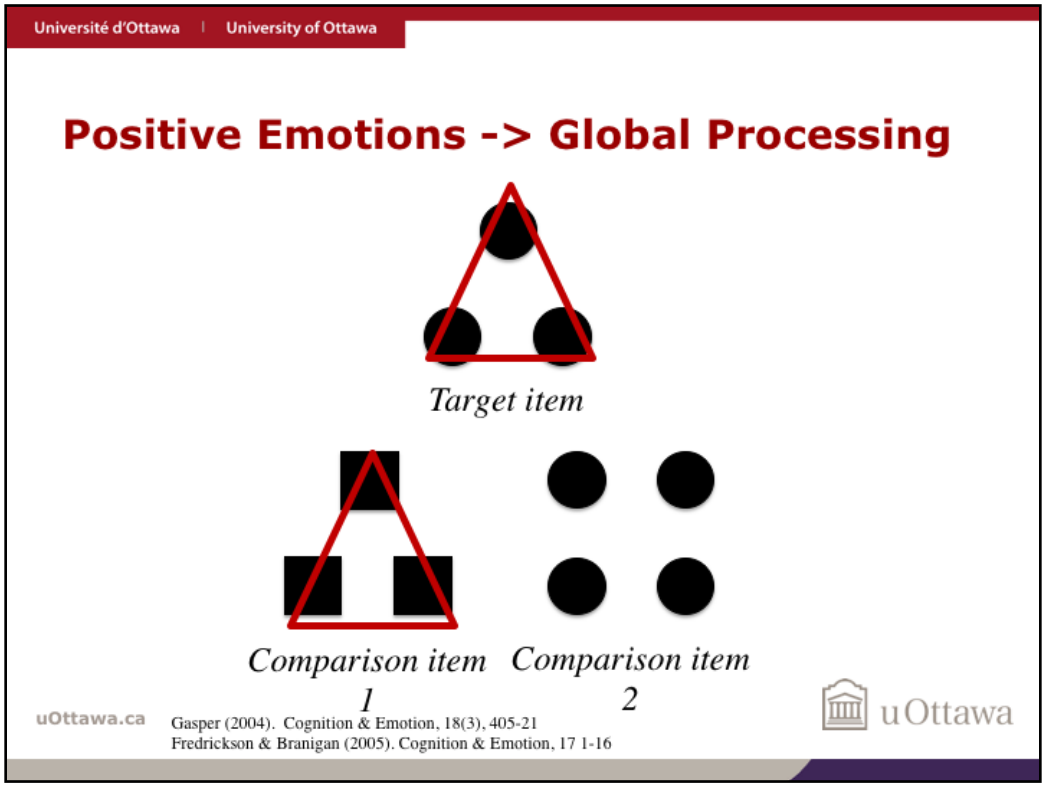
People in positive emotions are more likely to see the "big picture" by focusing on the broader, more general components of the situations

When people are in negative emotions, they are more likely to focus on specific details

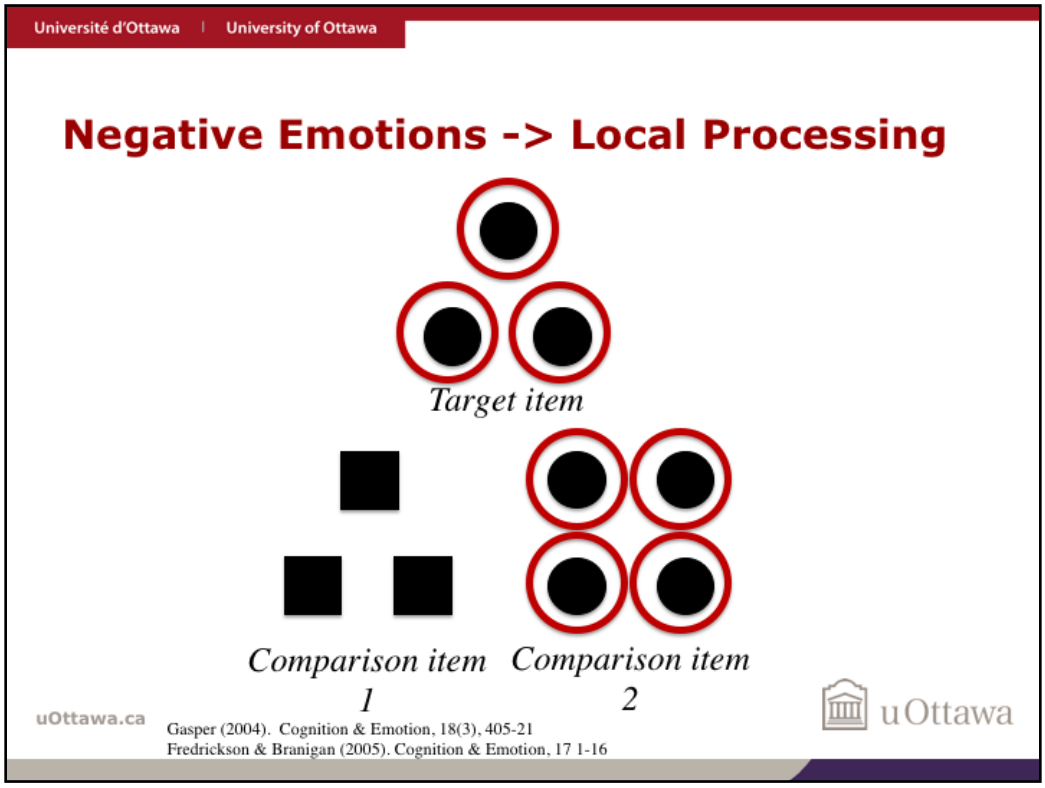


-Here's an example study

After being induced into different emotions, students are shown a display consisting of three geometric figures—a target and two comparison items, and were asked to decide which of the two comparison items was more similar to the target item.



In positive moods, they categorized the figured based on the global features

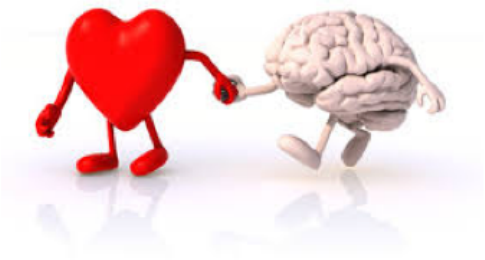


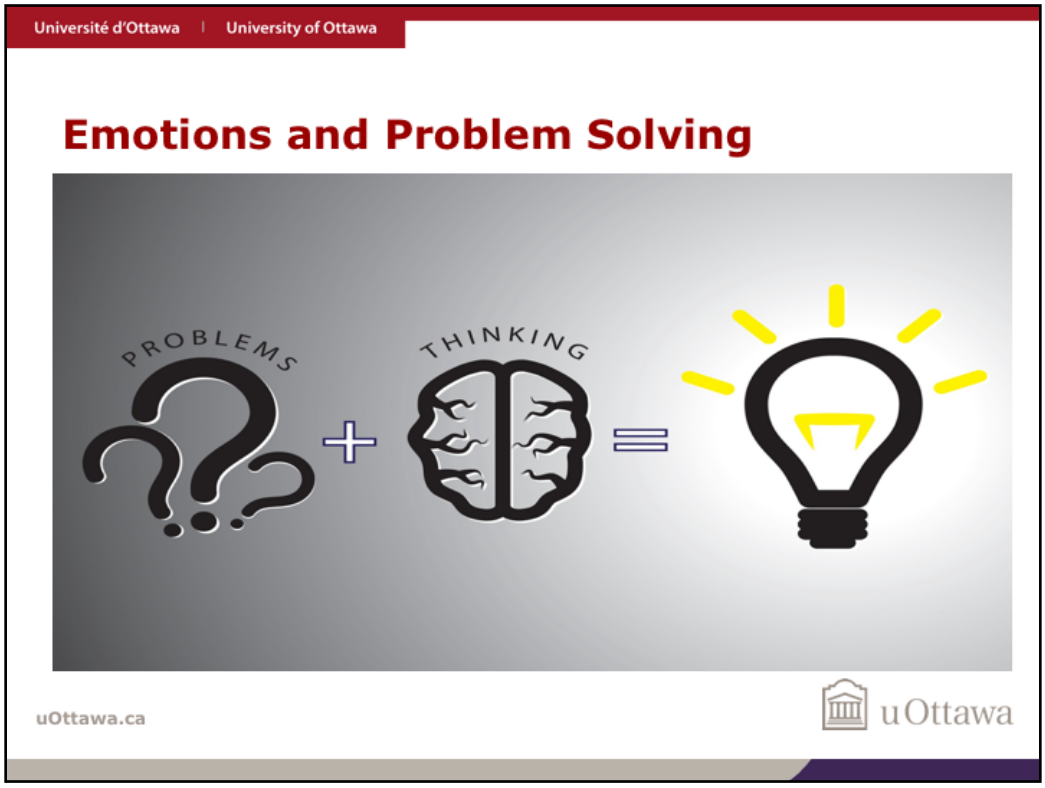
In negative moods, they categorized the figured based on the local features

CONCLUSION - These findings suggest that emotions can influence what students pay attention while learning, which can have important influences on how they learn

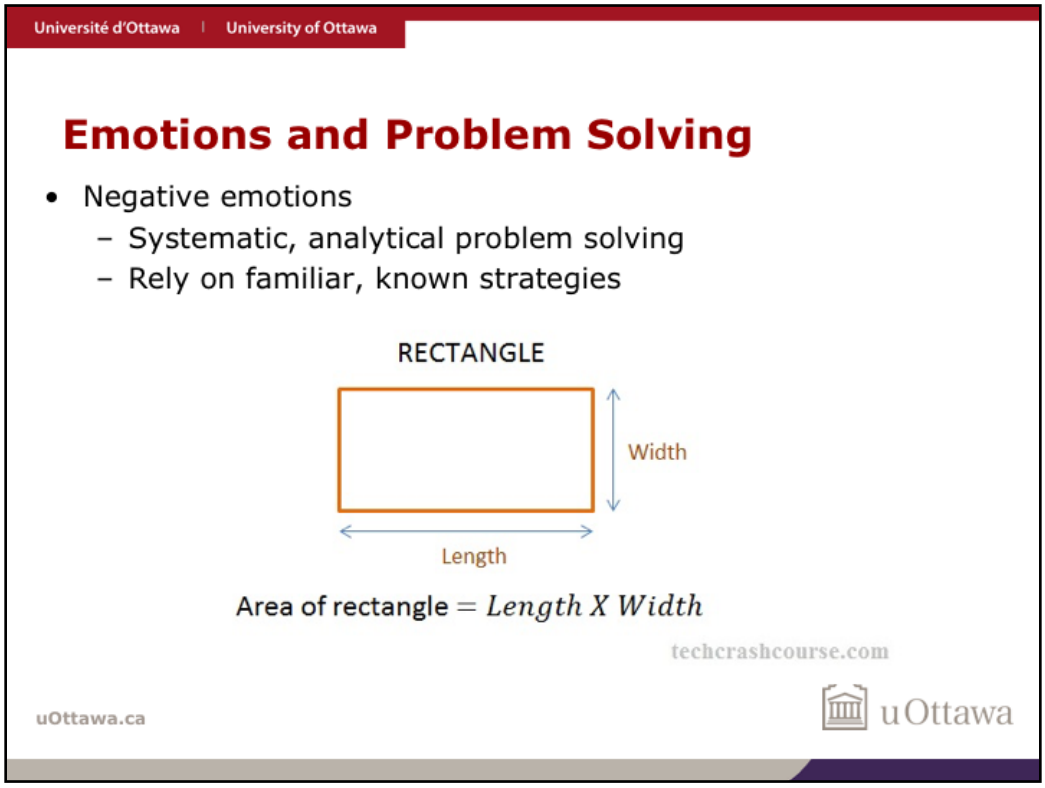
Emotion and Cognition

- Attention
- **Problem Solving**
- Cognitive Resources
- Self-Regulation
- Interest and Motivation





Attention and perception are the first states of information processing, and as such, factors that influence these will also influence subsequent states of processing, such as problem solving

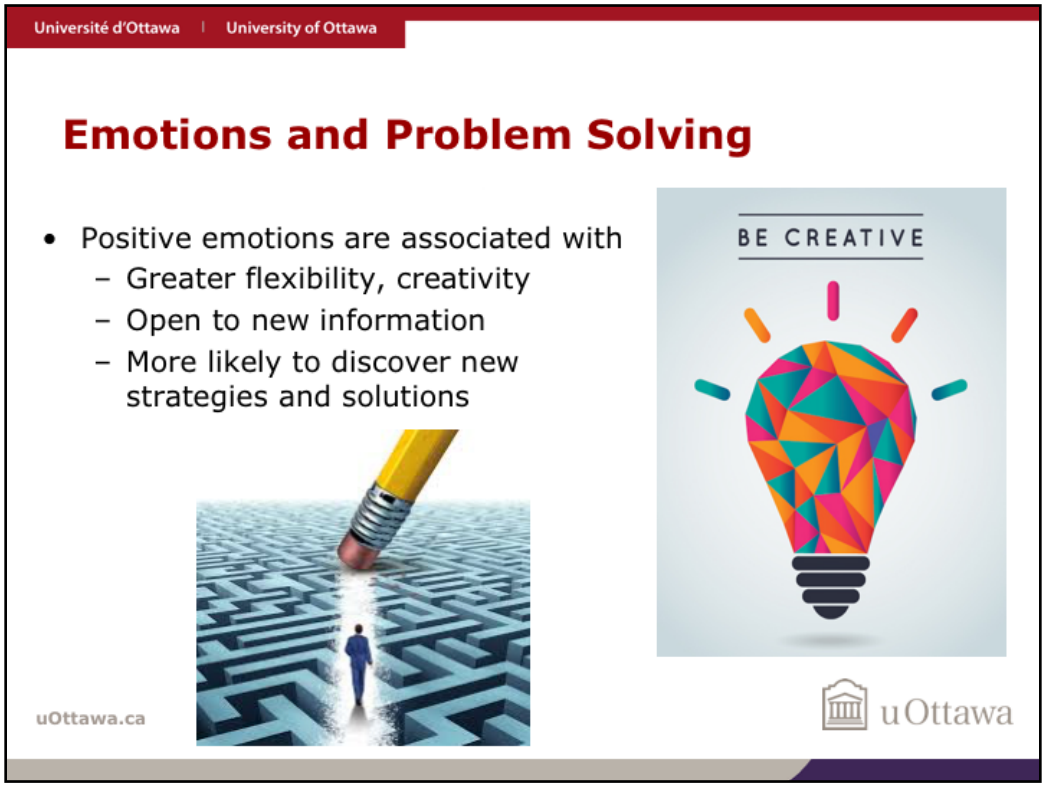


Emotions influence how students solve problems

Negative emotions encourage individuals to solve problems in a very systematic, analytical way

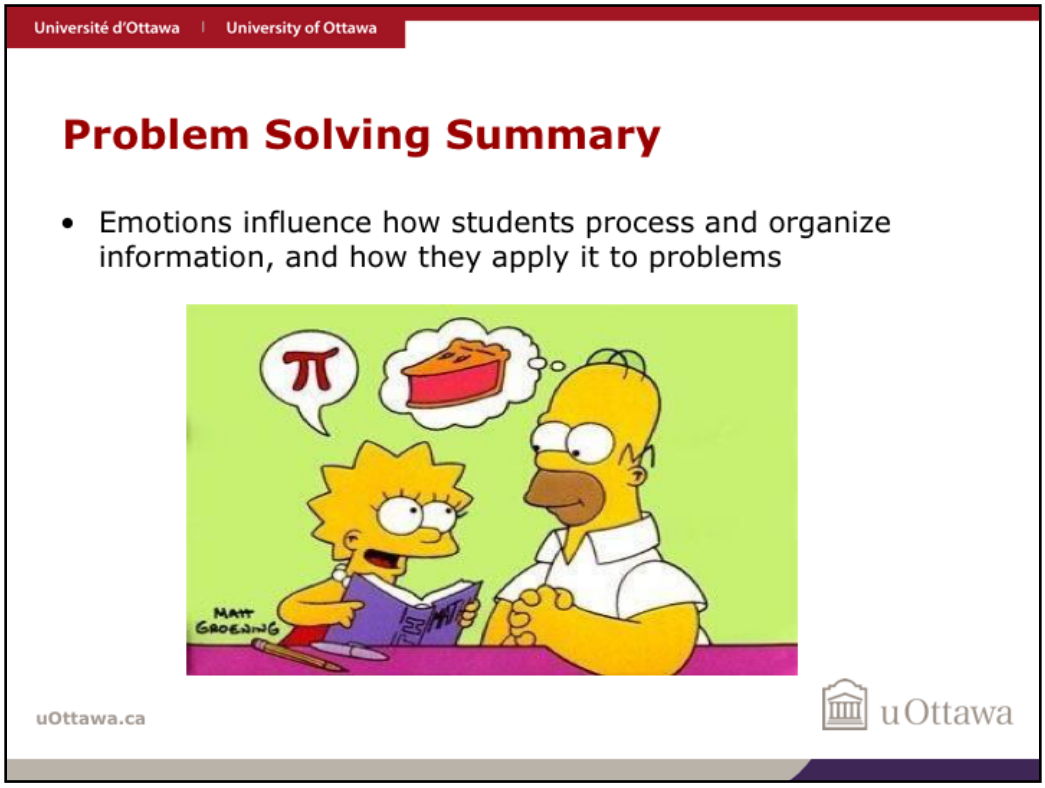
Students are more likely to rely on familiar problem-solving strategies when they are in negative emotions

> This isn't a bad thing, but it can limit students ability to think of alternative ways to solve a given problem
>
> We've all been in situations where we know the students know a concept, we generate a test question that is asking the same thing, but in a different way, and students can no longer solve it.

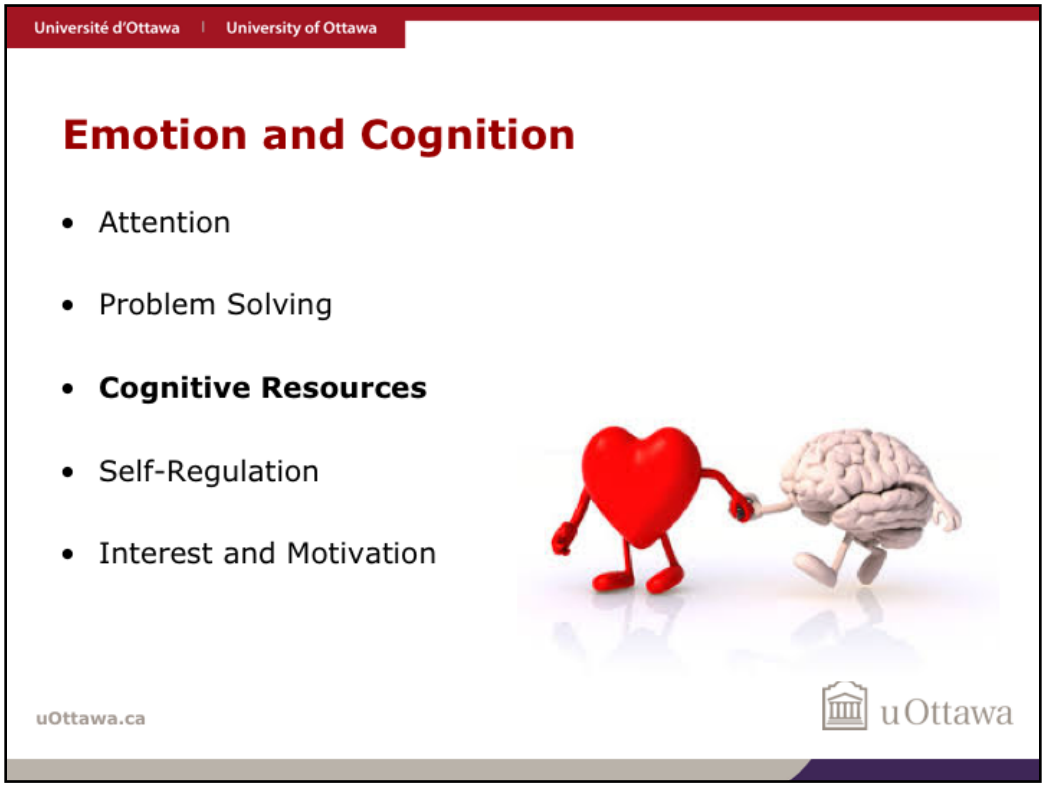


In contrast, positive emotions have been shown to promote more flexible, creative problem solving strategies and an openness to new information

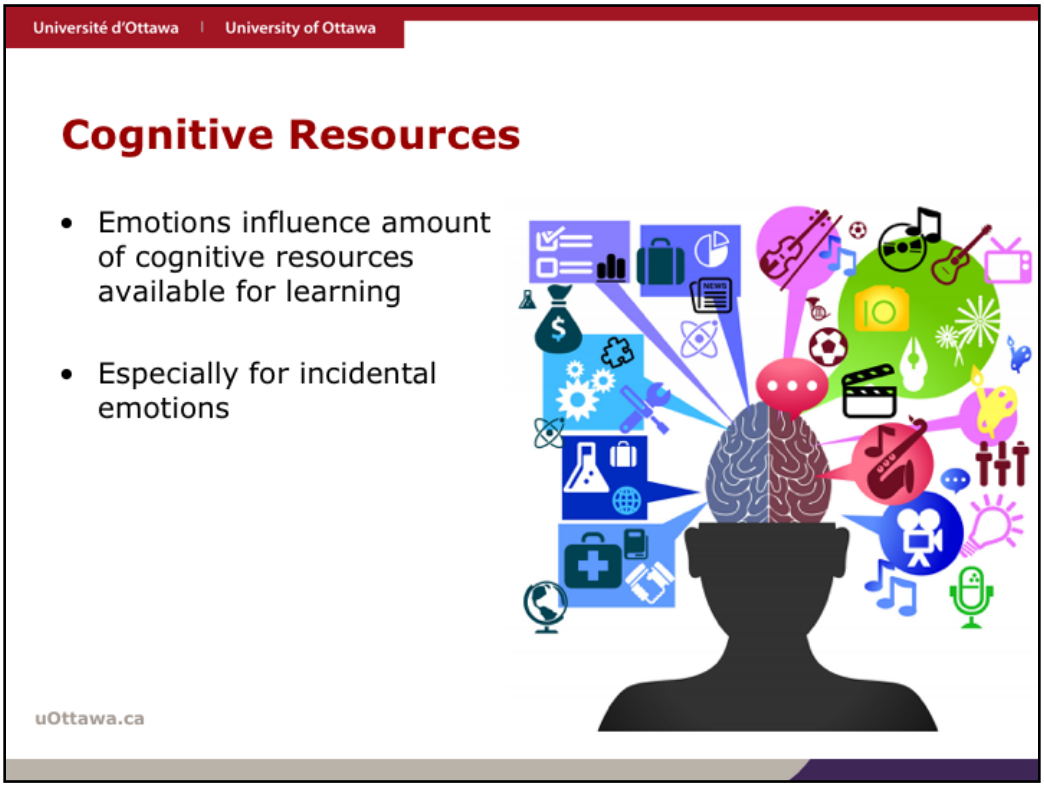
As a result, positive emotions allow students to discover new strategies and solutions, especially when the established ones fail



In this way, learners emotions influence how students process and organize information learned, and how they apply it to problems, both within and outside the classroom



Cognitive resources refer to the amount of internal, cognitive resources available to a person at a given time.

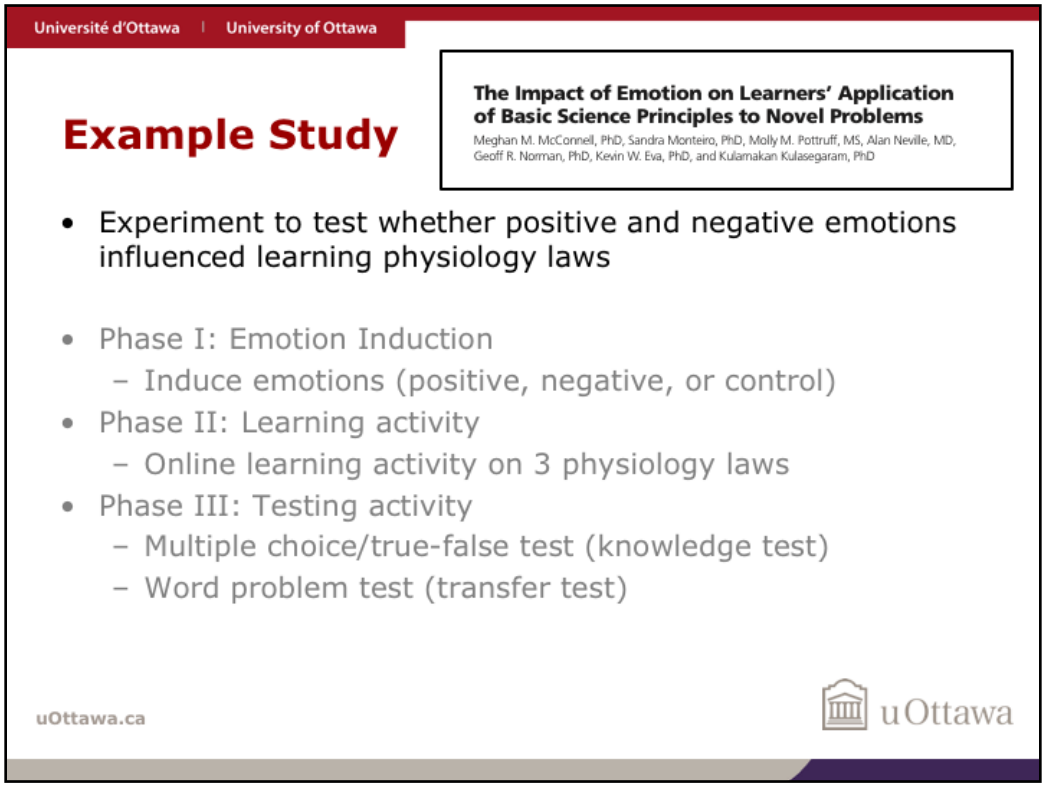


Emotions influence the distribution of cognitive resources during learning

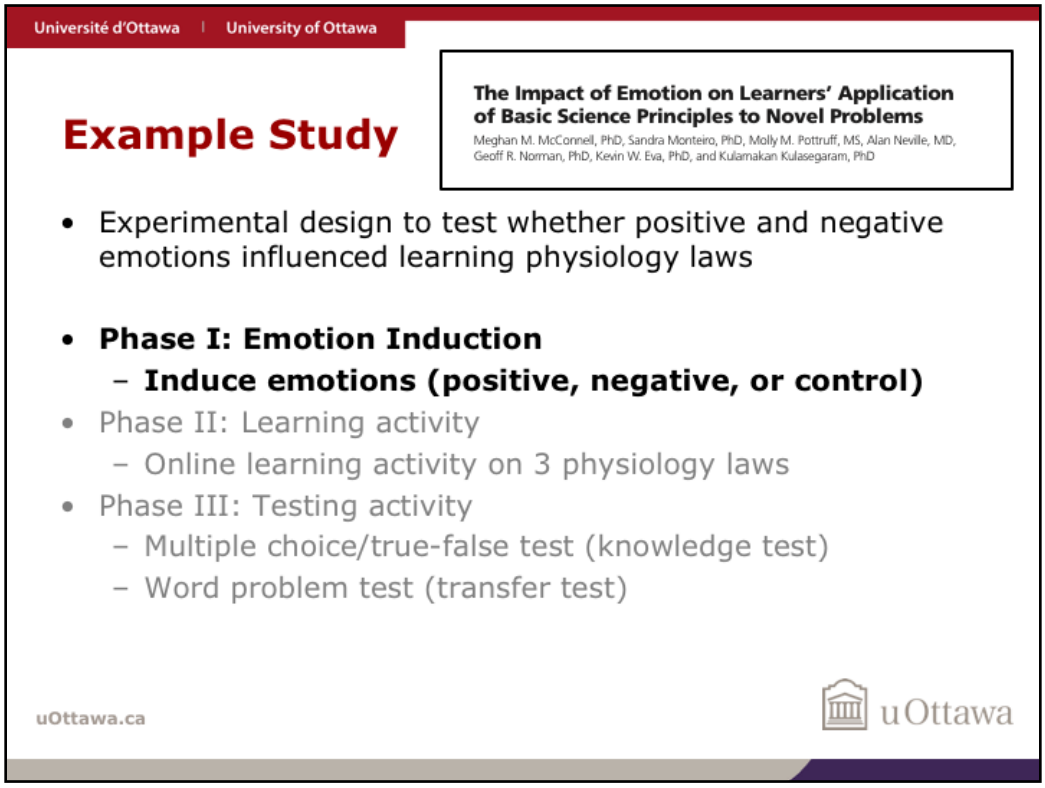
Emotions that are unrelated to the learning task (e.g., incidental emotions) will consume cognitive resources available to complete the task at hand, which will negatively impact learning

> For example, a student who is anxious about an upcoming exam, or is excited about going out with friends later that night will have fewer cognitive resources available to devote to learning

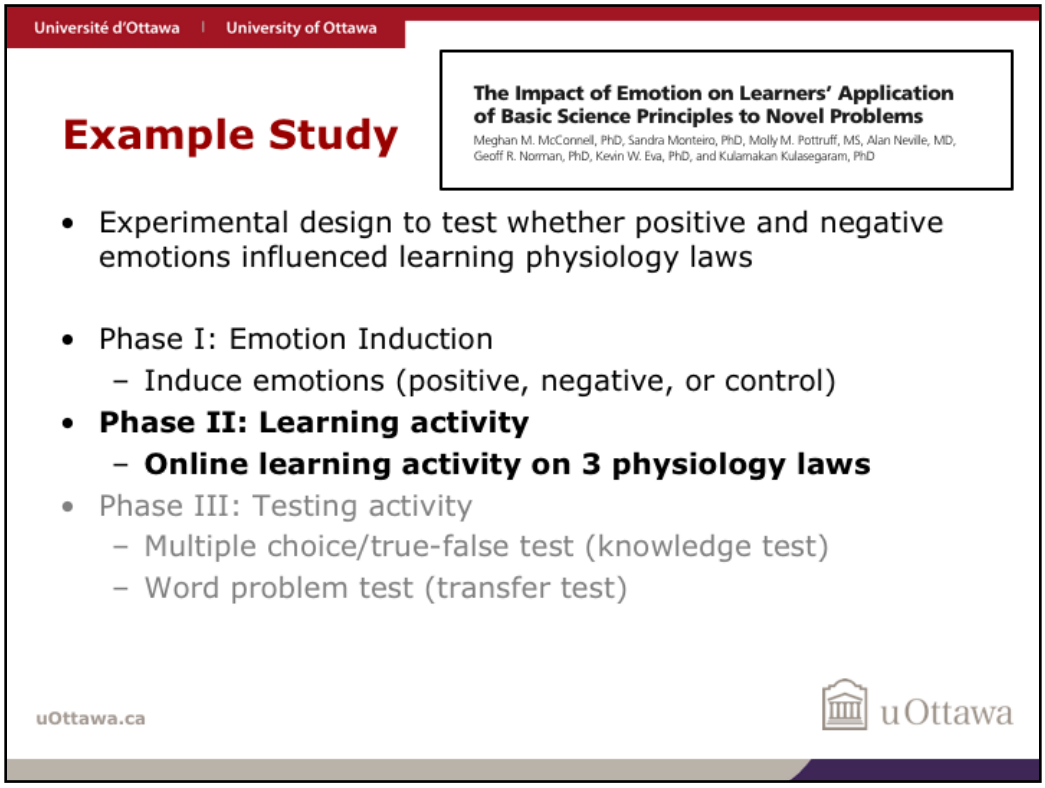
In this way, emotions take up space in working memory, reducing the cognitive resources available for processing information needed to learn and perform the task at hand.



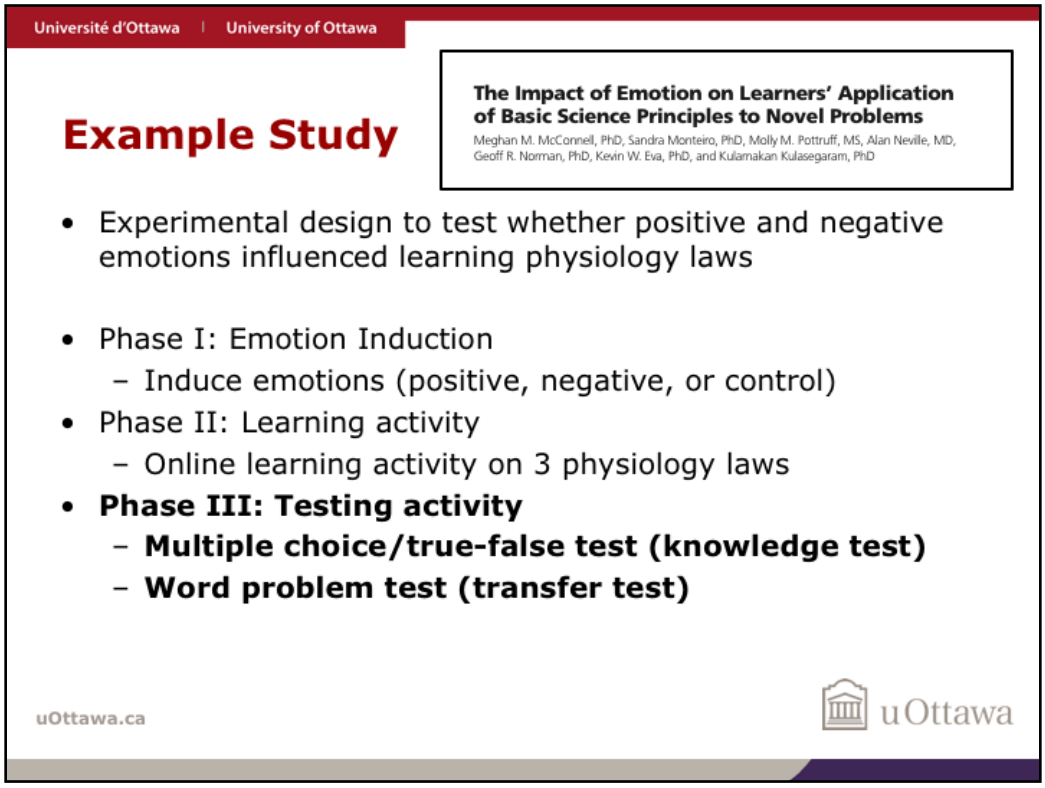
For example, I recently published a paper I examined the influence of positive, negative, and neutral emotions on learning various physiology laws in undergraduate psychology students.



In the first phase, I randomized them into one of three emotions groups. Those in the positive mood condition were asked to write about a "happy and positive event"; those in the negative emotion condition were asked to write about a "sad and negative even"; while those in the control/neutral condition were asked to write about their "actions on a normal day"

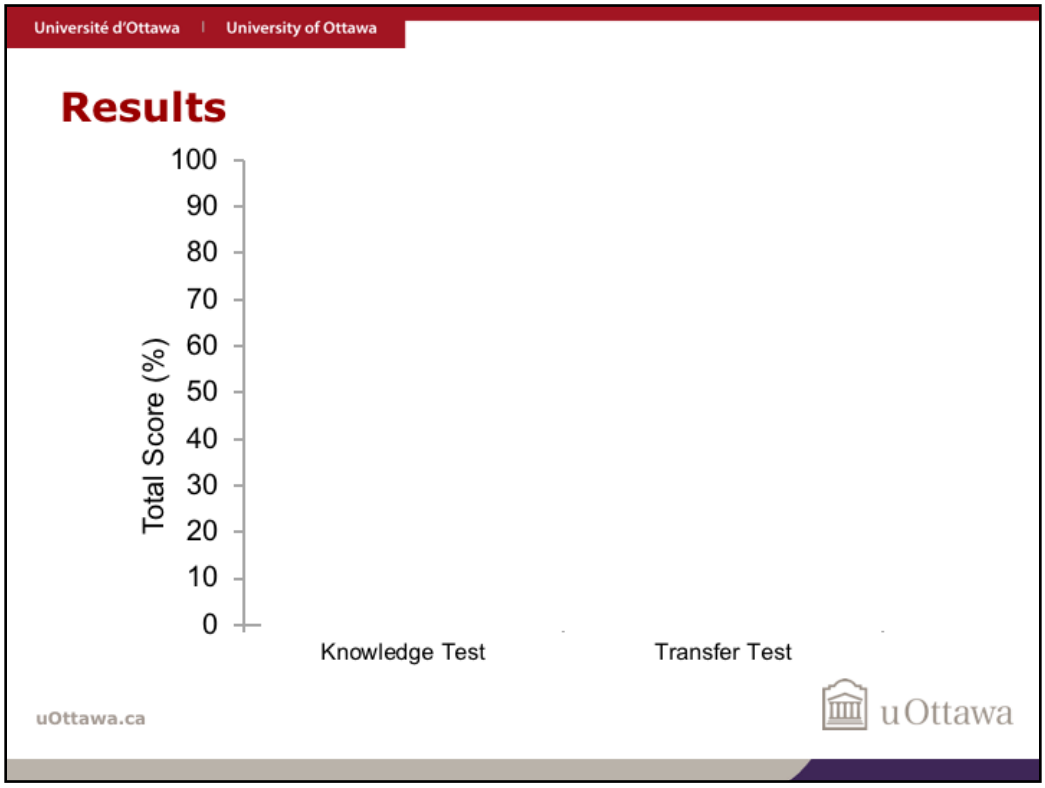


Immediately after, the students participate in an online learning activity, with an online lecture about 3 physiology laws, which were combined with visual diagrams and real world (medically-related examples).

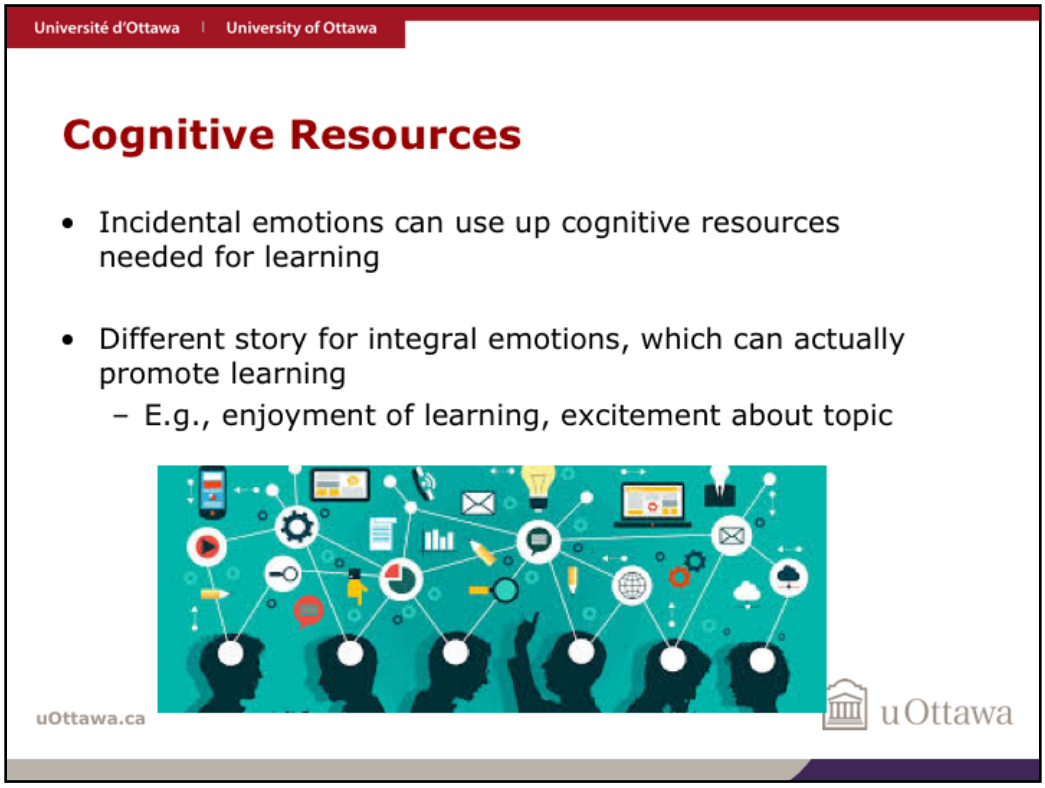


They then took a short written test, which required them to answer multiple-choice and true/false questions about the material they just learned. The goal of this test was to measure their knowledge of the information they just learned

They then participated in a transfer test, which was a bit more complex. Students were provided with a word problem describing a real world, medically related event, and were asked to a) identify the physiology law at play, and b) justify their decision



The results showed that students experiencing either positive or negative emotions has lower test scores than those in neutral emotional states (e.g., the control group).



It is important to note that most studies have focused predominantly on incidental emotions whereby emotions are measured (or manipulated) prior to completing a 'neutral' learning task.

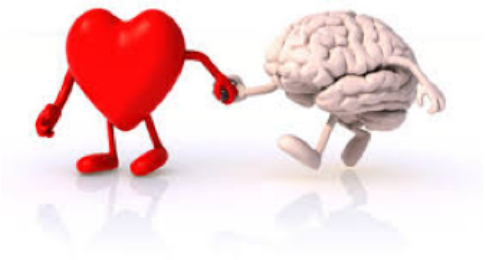
When emotions are integral to the task, researchers have shown that emotions can facilitate performance, particularly in arousing situations

For example, positive emotions linked to a specific learning task, such as enjoyment of learning or excitement over the topic, can promote learning

These results suggest that incidental and integral emotions have different effects on cognitive load, and consequently, learning and performance

Emotion and Cognition

- Attention
- Problem Solving
- Cognitive Resources
- **Self-Regulation**
- Interest and Motivation



In educational settings, SR refers to the way students plan, monitor, and evaluate their knowledge in order to adapt their learning approaches to the educational tasks and goals

Researchers have shown that emotional states can influence self-regulatory processes:

Positive, arousing emotions, such as enjoyment of learning, and enhance self-regulation.

> Because positive emotions enhance cognitive flexibility, they also promote students' self-regulation of learning, which requires flexible planning and monitoring of learning activities

Negative emotions, such as anxiety or shame, can undermine their self-regulation.

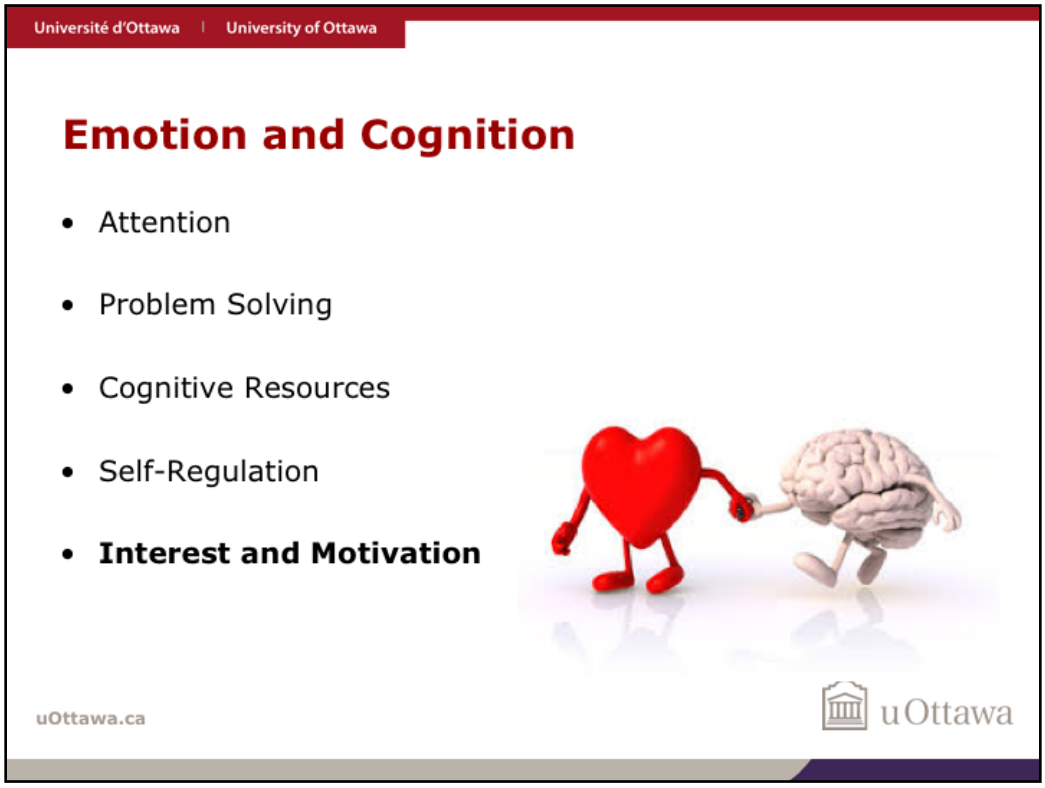
> Because negative emotions reduce the students ability to think flexibly, they can promote external regulation of learning. For example, anxiety can motivate students to rely on external guidance by teachers and parents

Emotions also influence whether individuals revise their educational goals

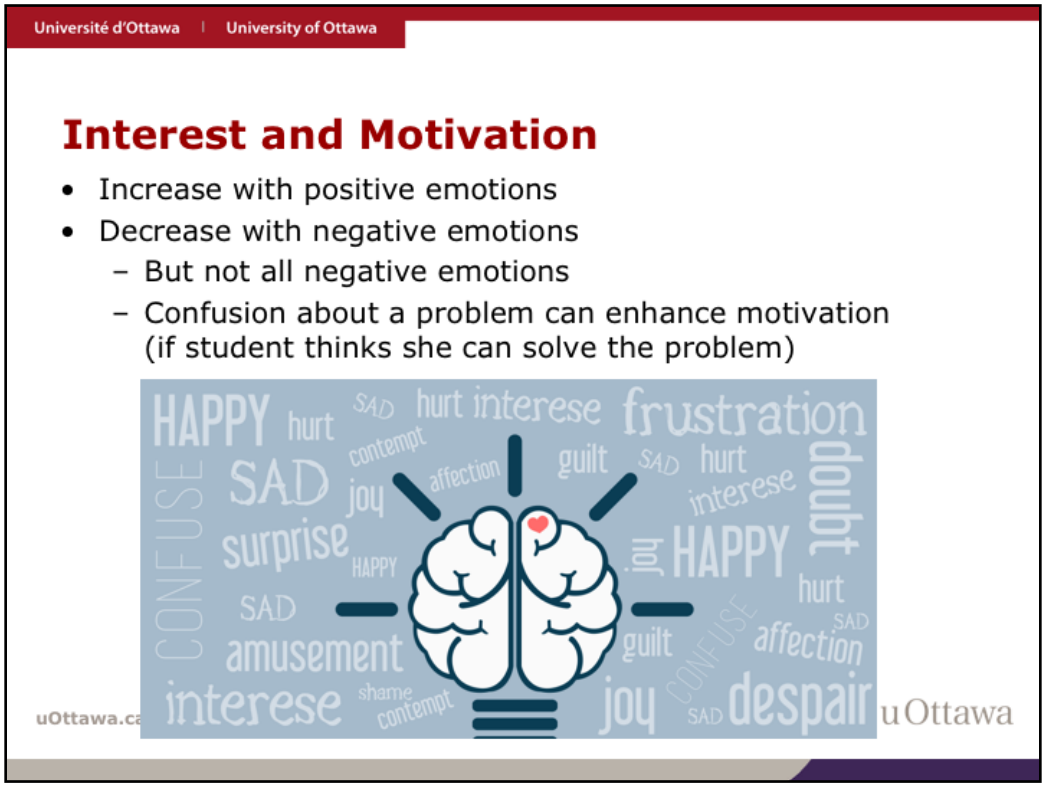
One study has shown that when in positive moods, students report higher academic goals, that is, they reported higher grade goals for the next test

On the other hand, those in negative moods tended to report lower goals

The authors theorized that positive emotions signal that success is possible, whereas negative emotions suggest to the person that success is unlikely



Lastly, emotions can impact students learning and performance by inducing and sustaining interest in learning material



Positive emotions in educational settings, such as enjoyment of learning, can increase students interest and motivation

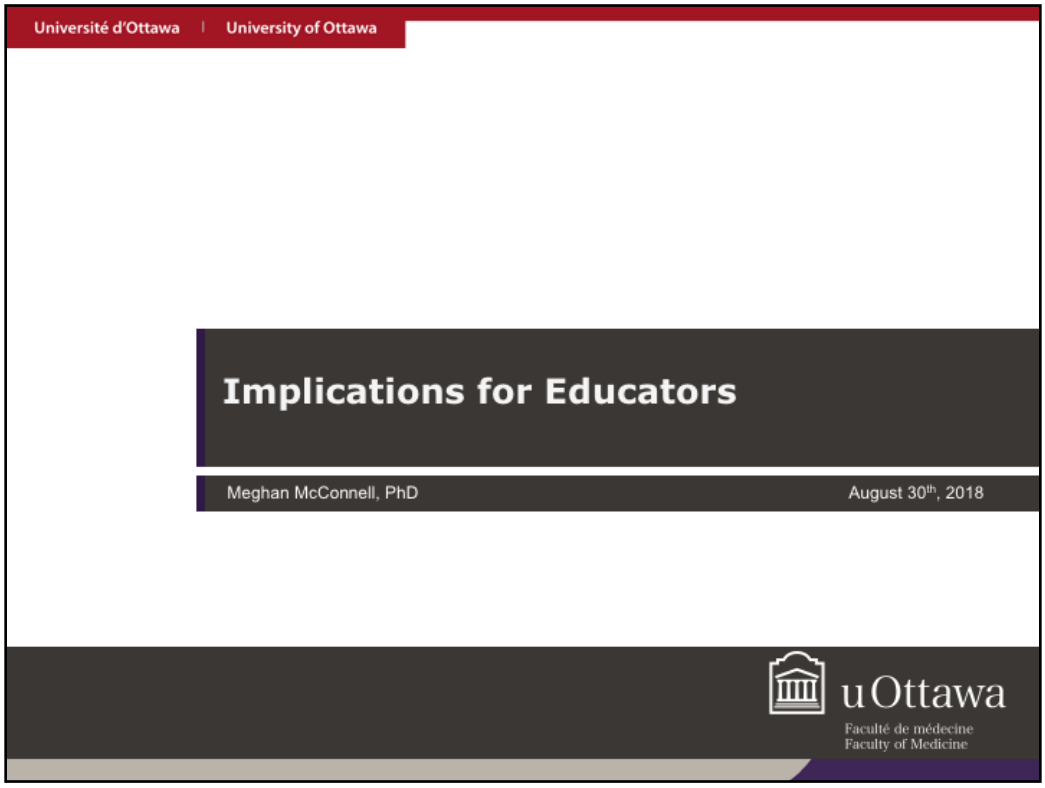
> These emotions help to recollect positive memories and to appraise positively the value of learning tasks and students competence to solve them

By contrast, negative emotions such a hopelessness and boredom, can have detrimental effects on motivation.

The motivational effects of negative emotions are variable.

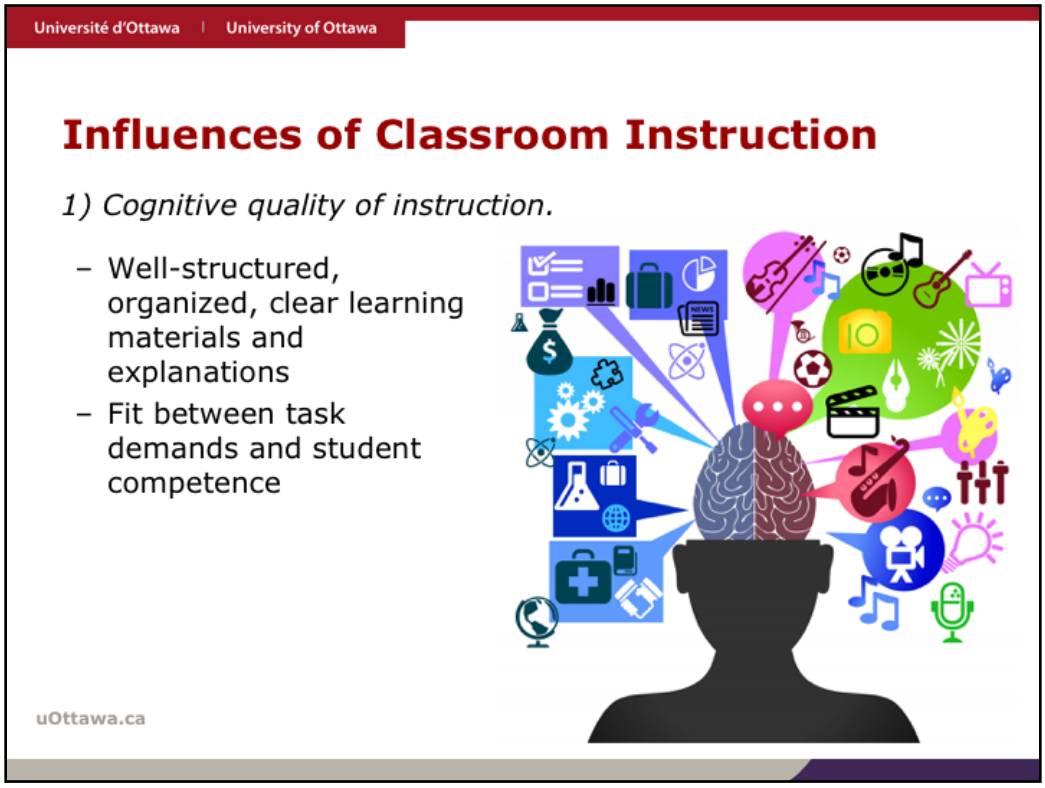
For example, negative emotions such as confusion about a problem, can also enhance motivation as long as the student still expects to solve the problem.

In contrast, low arousal negative emotions, such as boredom or hopelessness, generally reduced students' motivation to learn



The structure of the educational context is important for students' emotion

There are several methods to improve the quality of your lectures

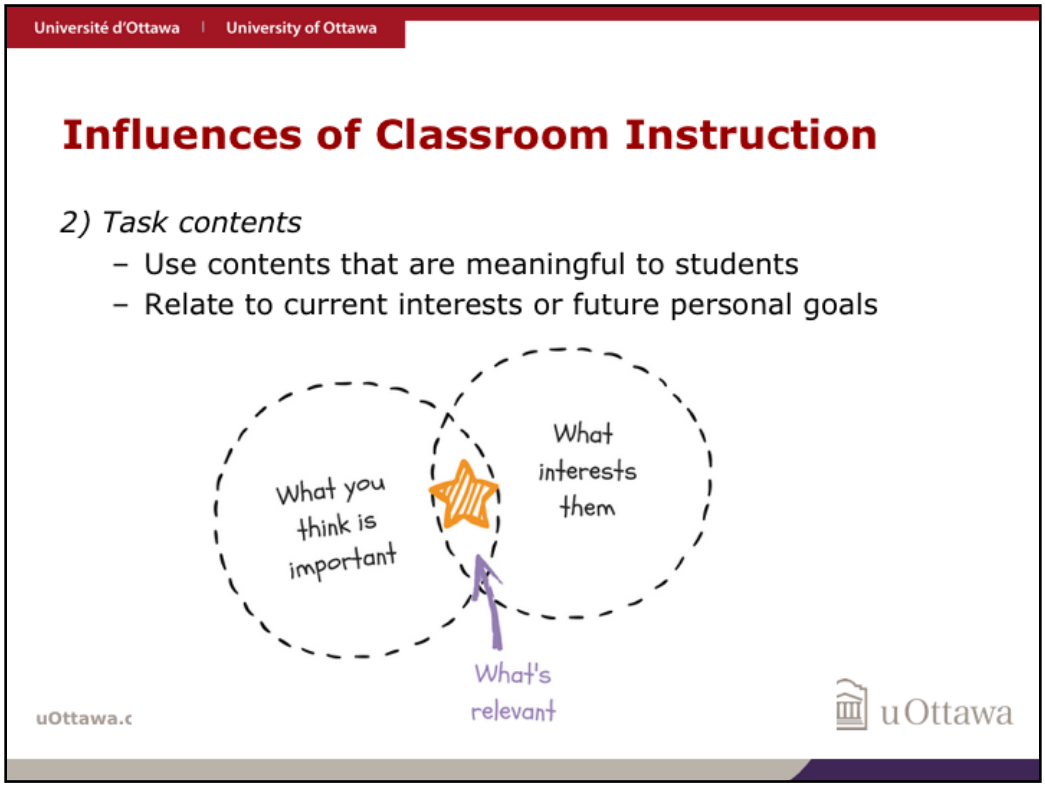


Cognitive quality of instruction and tasks helps student understand the learning material, build up competencies and self-confidence, and reduce negative emotions

High cognitive quality can be obtained by ensuring that learning materials and explanations are well-structured, organized and clear, and by providing an appropriate fit between task demands and student competencies

Provide students with problems that involve a moderate level of effort to solve, which is likely to trigger surprise, curiosity, and productive confusion.

However, make sure the confusion is resolved before students become frustrated, board or anxious when they are unable to solve the problem

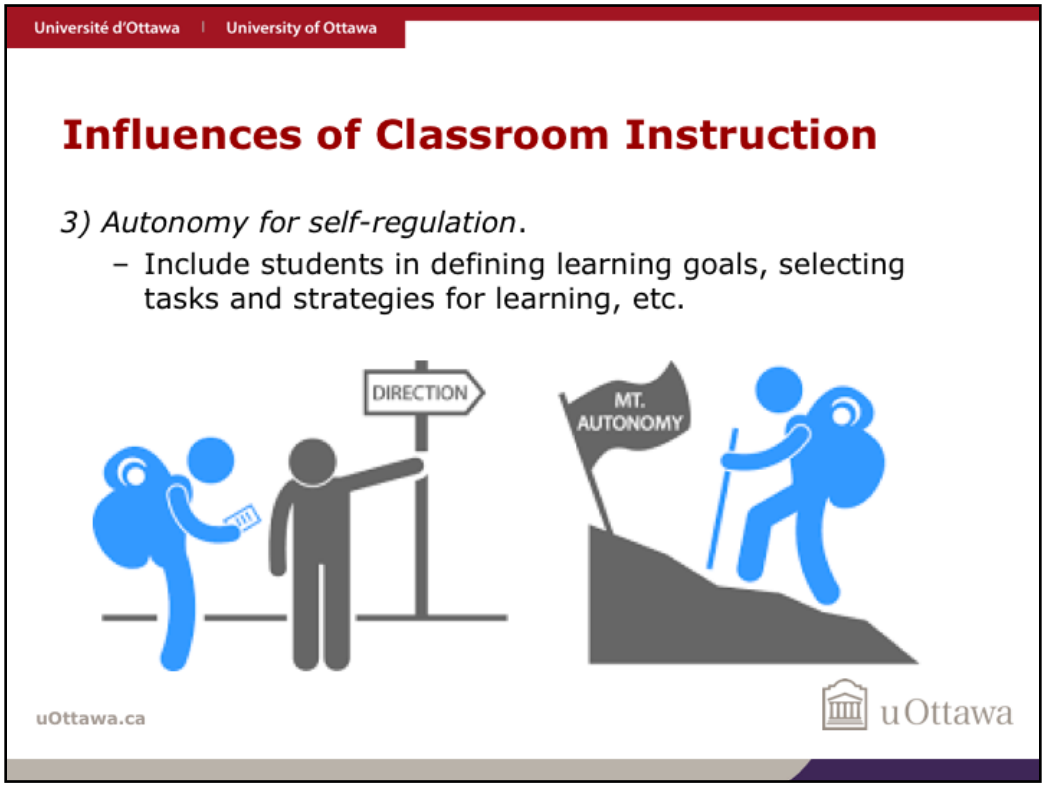


Task contents. Use contents that are meaningful to students, which helps them to develop interest and intrinsic task values.

You can make tasks more meaningful by providing contents that are related to students' current interests within and out of school, including their leisure-time activities, and by providing contents that are related to students' future personal and career goals.

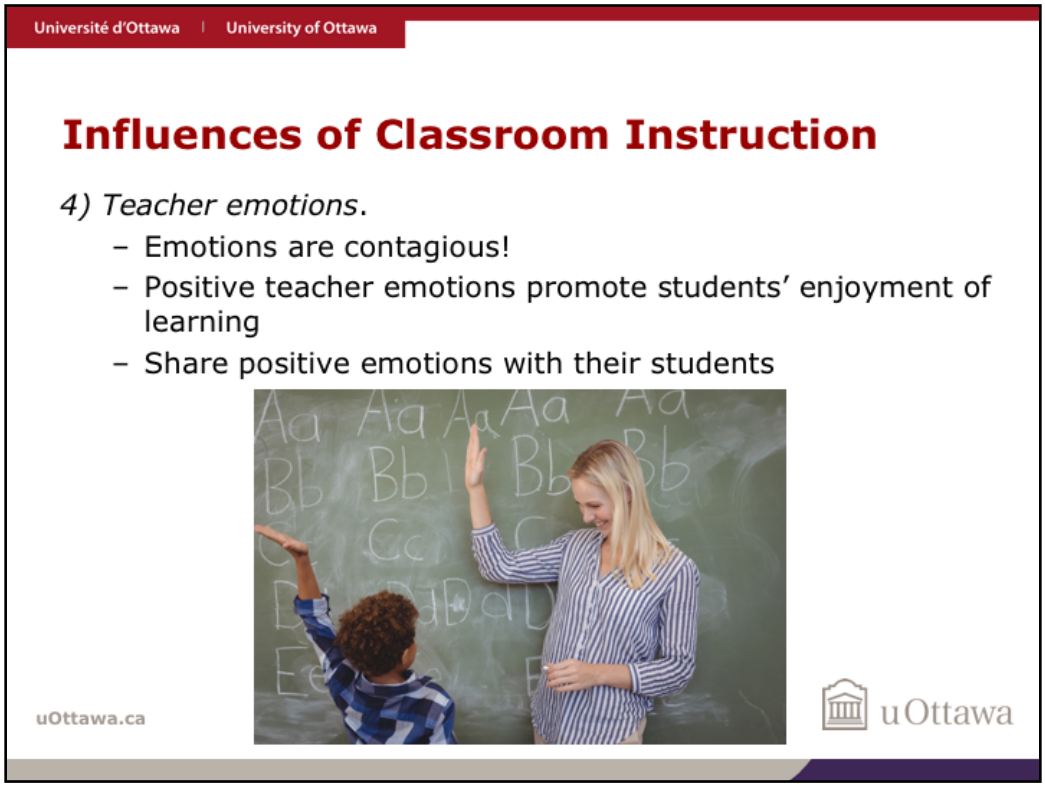
Make it clear to students how tasks that may seem less relevant in the short term can nevertheless be important for their life

Alternatively, you can let students learn for themselves how academic tasks relate to their life, for example, by writing essays about the link between these tasks to their future



Autonomy for self-regulation. Provide students with the autonomy to self-regulate learning in order to increase their enjoyment.

Autonomy can be given to individual students or to groups of students, and can include defining goals for learning, selecting tasks and strategies used for learning, and monitoring and evaluating one's progress.



Teacher emotions.

Emotions are contagious

Therefore, the emotions that the teacher experiences and displays can have profound effects on the emotions experienced by students.

This is true both for positive emotions, such as enjoyment, excitement and pride during teaching, and for negative emotions such as anger, anxiety or frustration.

Positive teacher emotions can promote students' enjoyment of learning within the classroom and can have long-lasting effects on the value of learning perceived by students.

Therefore, teachers should take care to show the positive emotions they feel about teaching and the subject matter, and make sure that they share positive emotions and enthusiasm with their students.

<u>Different achievement goals contribute to students' emotions.</u>

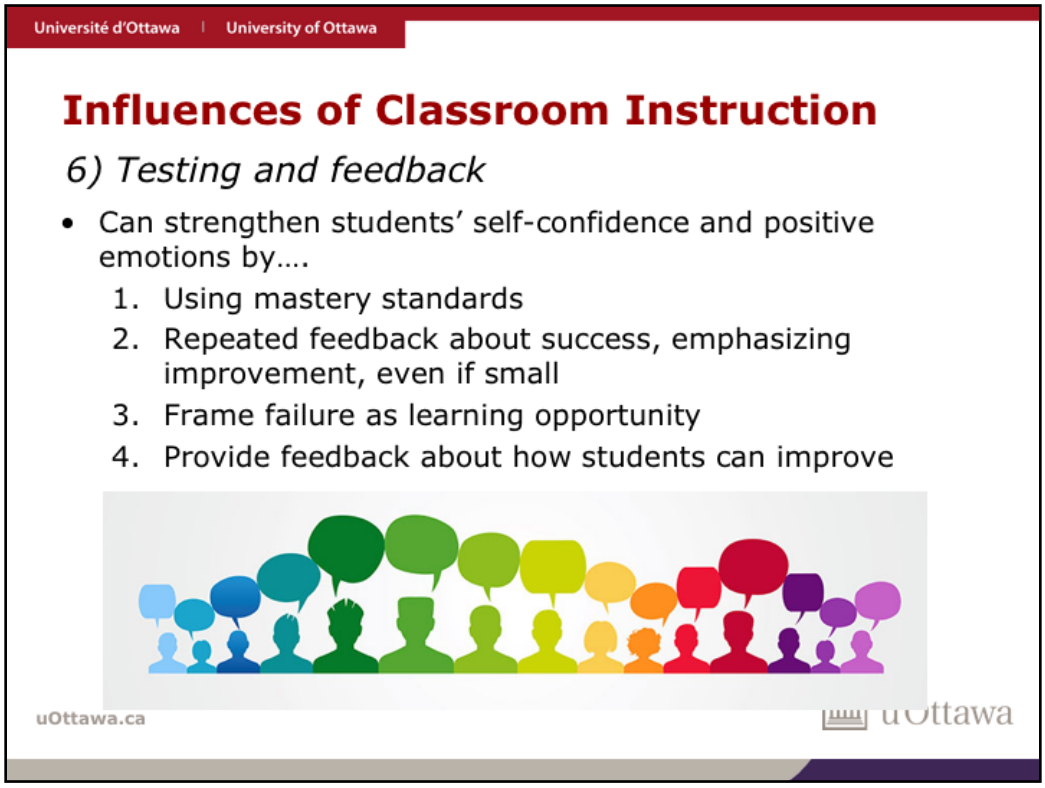
Mastery goals relate to mastering the learning material and to improving one's competence.

> By focusing students' attention on the learning activity, mastery goals promote their enjoyment of learning and reduce boredom

Performance goals relate to outperforming others or avoiding doing worse than others.

> Performance goals promote emotions related to success and failure, **such as pride, anxiety, shame and hopelessness.**

- In order to enable all students to experience success, teachers try to use mastery goal and standards over performance goals.
- With mastery standards, it is generally possible for every student to attain success.
- Mastery standards imply that the achievement of an individual student is evaluated independently from the achievement of the other students.
- Use of mastery standards makes it possible for each student to be judged according improvement over time, which lays the foundations for developing self-confidence and positive emotions among the students.
- By contrast, when using performance standards, teachers have to tell some students that they have failed due to performing worse than others, even if all students have actually shown mastery of the learning material
- Therefore, performance goals and normative standards can induce a competitive climate in the classroom



The organization of tests and assessments, the feedback provided after testing influence students' emotions.

Feedback about achievement on academic tests is one of the most powerful factors in the development of achievement emotions.

Regarding feedback about achievement, you can strengthen students' self-confidence and positive emotions by using the following four guidelines.

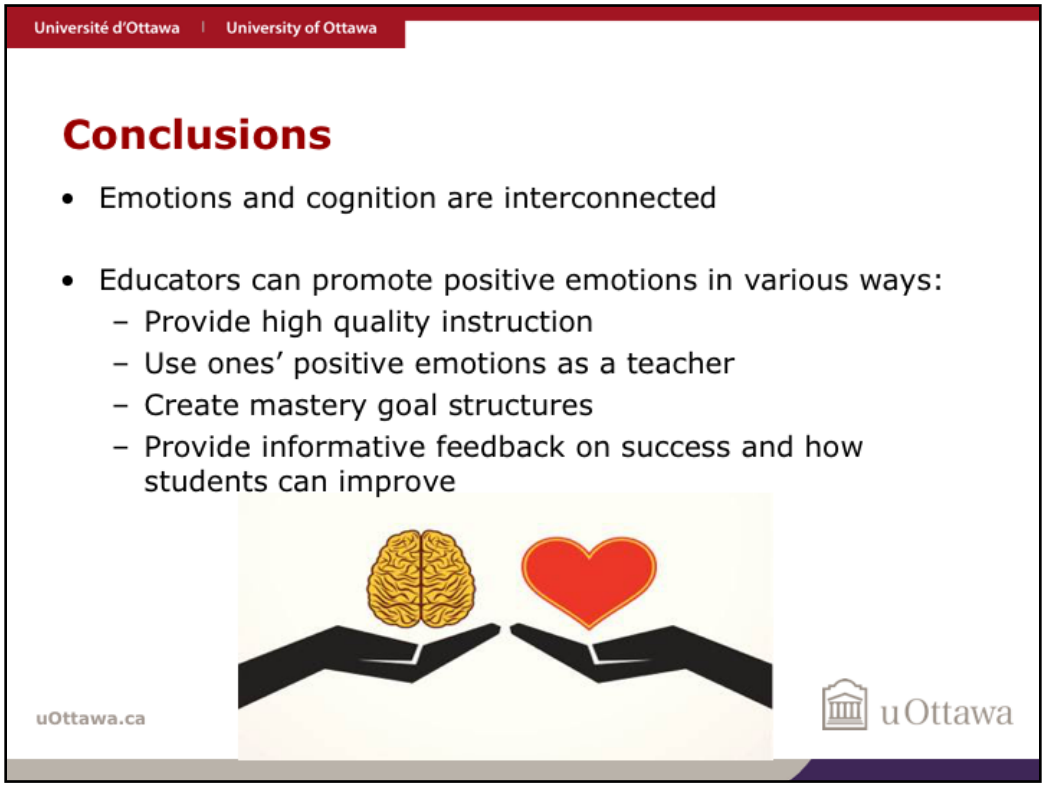
1. Use mastery standards and avoid normative standards for evaluating achievement whenever possible
2. Use repeated feedback about success rather than failure by emphasizing improvement of performance, even if improvement is small, which can generally be done when using mastery standards.
3. There will be times when it cannot be avoided, or may even be necessary, that students have failed to learn some materials. In these cases, make clear to students that errors should not be regarded as information about lack of ability but as opportunities to learn.
4. Beyond evaluative feedback about success and failure, provide informational feedback about how students can improve their competencies and attain mastery.

Finally, consider the consequences of assessment.

High-stakes testing is defined as testing that entails serious consequences, such as decisions about students' career opportunities. High-stakes testing can increase positive achievement emotions in successful students but, for students who fail, it increases frustration and shame about failure, as well as anxiety and hopelessness related to the future.

Therefore, avoid high-stakes testing whenever possible. Rather, create a culture of using assessments to gain information about how to develop mastery.

Use well-structures tests, provide information feedback, and avoid high stakes testing (when possible)

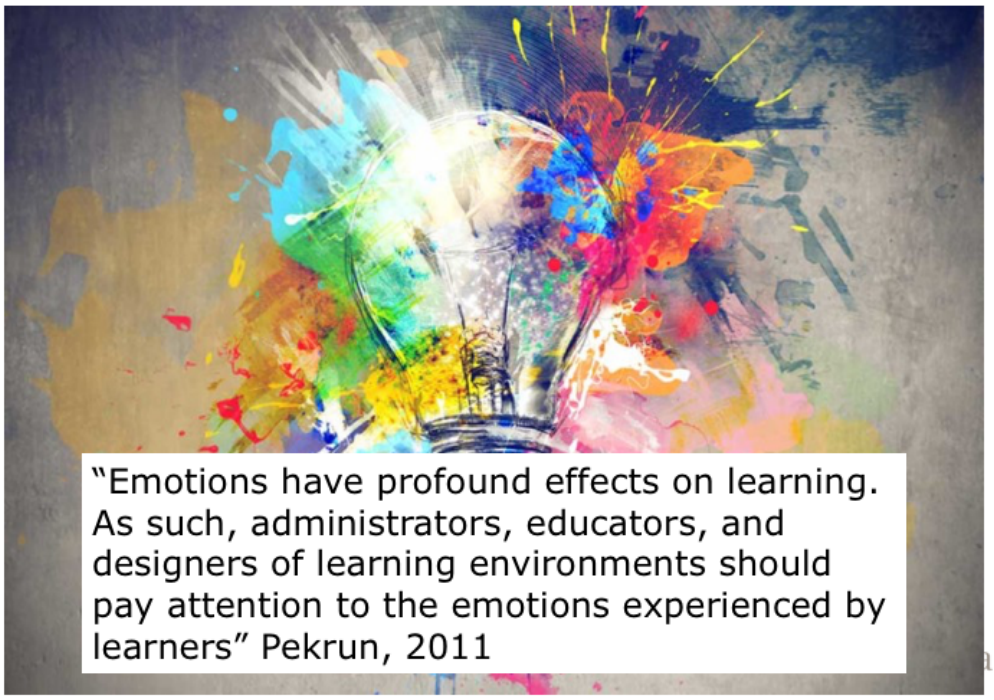


Emotions and feelings are deeply interconnected with how individuals process, perceive, and interpret information in learning environments

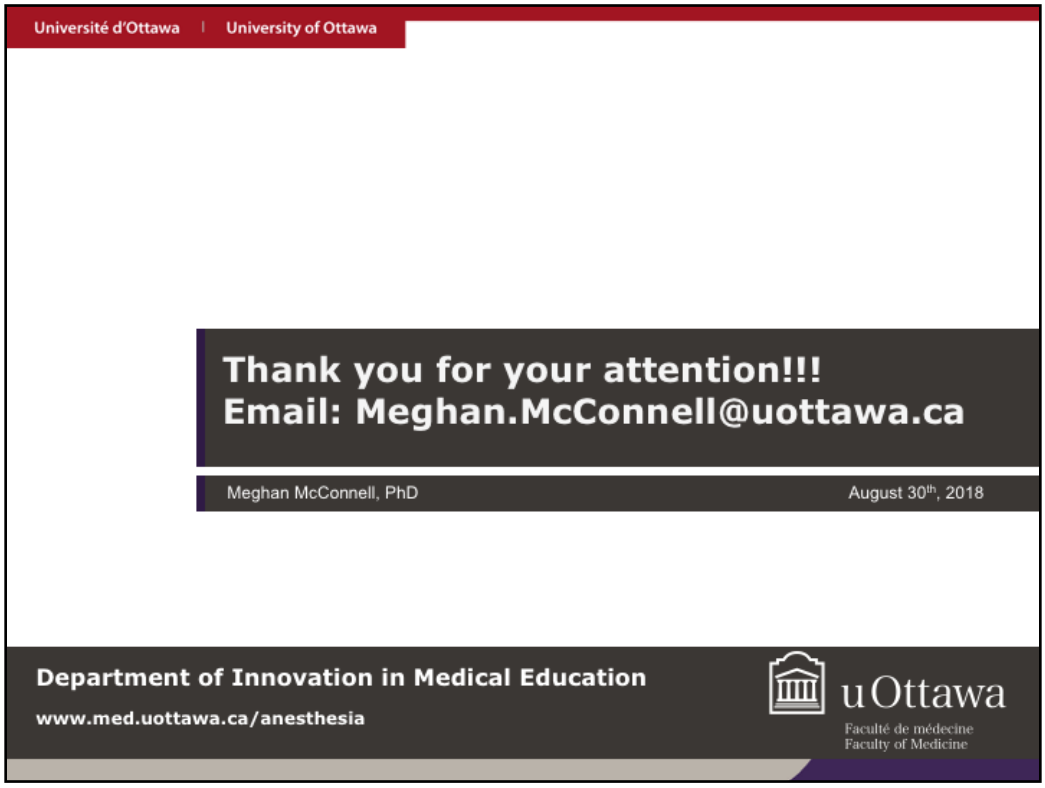
> Emotions influence students' attention, influence their motivation to learn, modify the choice of learning strategies, and affect their self-regulation of learning.
>
> Furthermore, emotions are part of students' identity, and they affect personality development, psychological health and physical health.

There are several ways to help students increase positive emotions and decrease negative emotions.

> This can be done by providing high-quality instruction, using one's positive emotions as a teacher, creating mastery goal structures in the classroom, employing mastery standards to inform students about progress at learning, avoiding high-stakes testing, involving parents, and caring for the peer climate in the classroom



"Emotions have profound effects on learning. As such, administrators, educators, and designers of learning environments should pay attention to the emotions experienced by learners" Pekrun, 2011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Thank you for your attention!!!
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