



Simposio internazionale

“Il mentoring: una via per sostenere la qualità dell’apprendimento e dell’insegnamento”  
Palermo, June 15-16, 2023

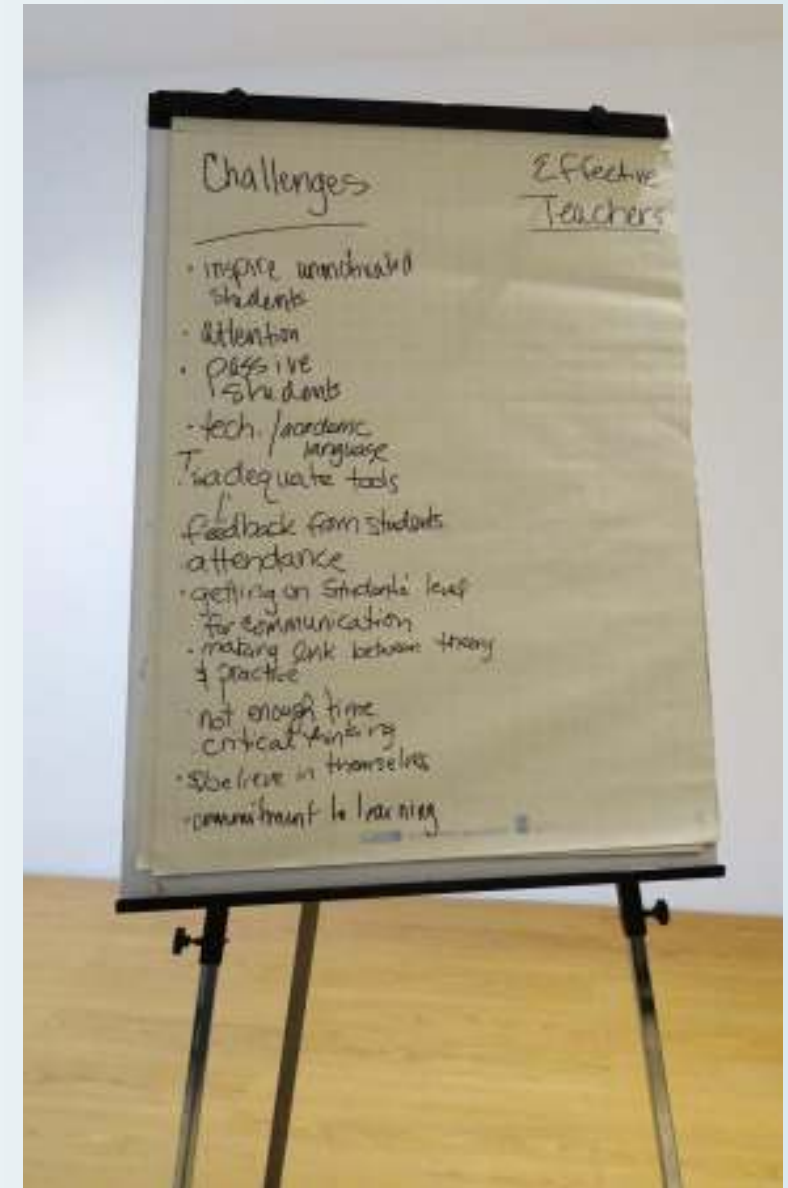
# Challenges in Teaching and learning innovation: the support of the “Progetto Mentore”

Vincenzo La Carrubba, Elisabetta Oddo, Maria A. Ragusa

# Challenges in teaching and learning innovation

Innovation, Active learning,  
Student-based learning

Exit comfort zone



# «Progetto mentore per la didattica»

The “Progetto Mentore” of the University of Palermo affects teaching quality

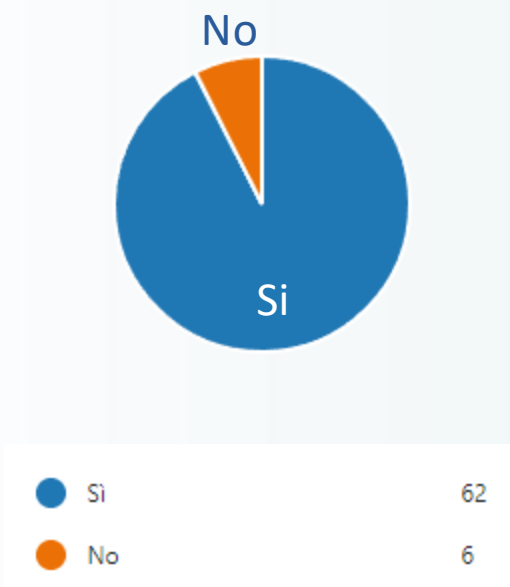
in many ways:

- ❑ through peer mentoring,
- ❑ by offering training, seminars and workshops,
- ❑ by contributing to establish a strong sense of community.

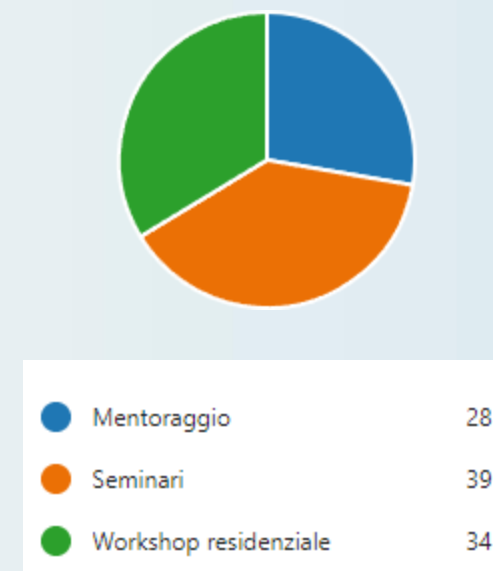


# The support of the “Progetto Mentore”

La partecipazione al Progetto Mentore ti ha portato ad introdurre delle innovazioni didattiche nei tuoi insegnamenti?



Quali delle attività proposte dal Programma Mentore hanno influenzato maggiormente l'introduzione di attività innovative?



# Active learning

Active learning is: “anything that involves students in **doing** things and **thinking about the things they are doing**” (Bonwell & Eison, 1991).

‘Active learning’ helps students learn better by engaging them physically.

Though students felt as if they learned more through traditional lectures,

they actually learned more when taking part in classrooms that employed so-called active-learning strategies.



# Teachers' point of view

## Professors

- ❑ have to **reprogram** their course and lectures to actively involve their students and **plan the activities**;
- ❑ may have **prejudices** against changing a well-established course and **cutting the contents of the syllabus**;
- ❑ may consider Active Learning methods as **not appealing or suitable for undergraduate students**.

"I should keep lecturing because I've always lectured and that's always been fine"

# Teachers' point of view




I Workshop Progetto Mentore 2018

What have we  
learned from  
«Progetto Mentore»?

# Deciding to start an innovation process

It can be a step-by-step process, starting from simple techniques and gradually increasing the level of complexity of chosen activities and methods.

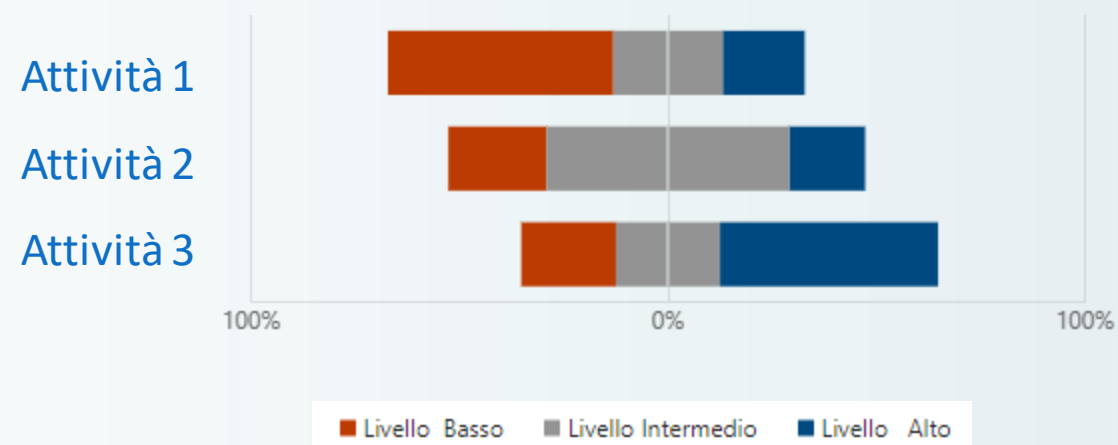


<b>Complessità bassa</b>	<b>Complessità media</b>	<b>Complessità alta</b>
<u>Think-Pair-Share</u>	Presentazioni di gruppo	Casi studio
Brainstorming	Giochi di ruolo	Team <u>Based Learning</u>
Quiz formativi	<u>Debate</u>	<u>Problem Based Learning</u>
PRS ( <u>Kahoot</u> , <u>Mentimeter</u> , ecc.)	Mappe concettuali	Project <u>Based Learning</u>

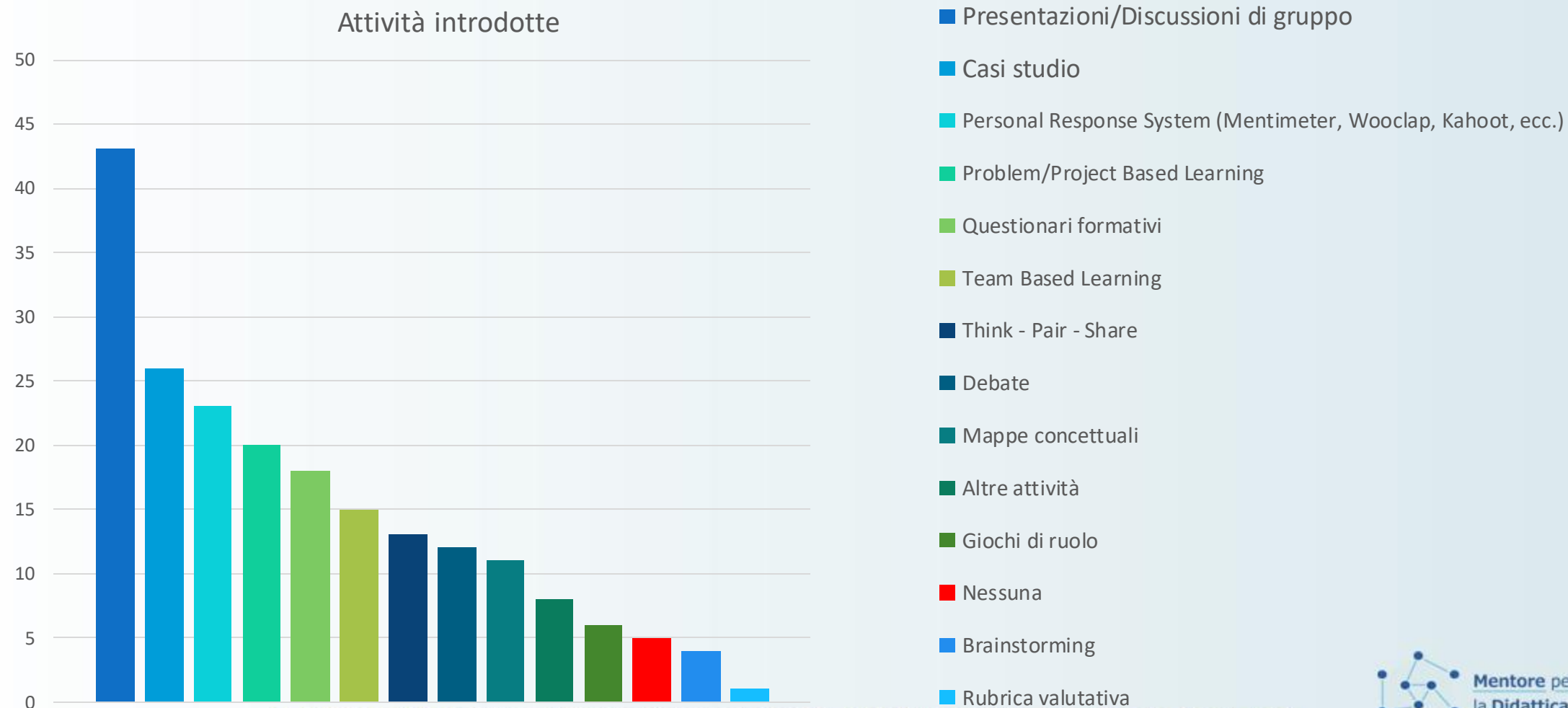


# Se hai introdotto delle attività, quale livello di complessità hanno?

(Indica fino a 3 attività con tre livelli di complessità, pensando a quelle che usi più di frequente)



# Quali delle seguenti attività hai introdotto?

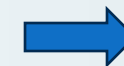
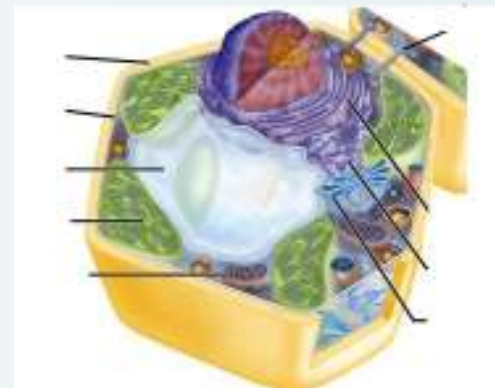
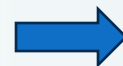
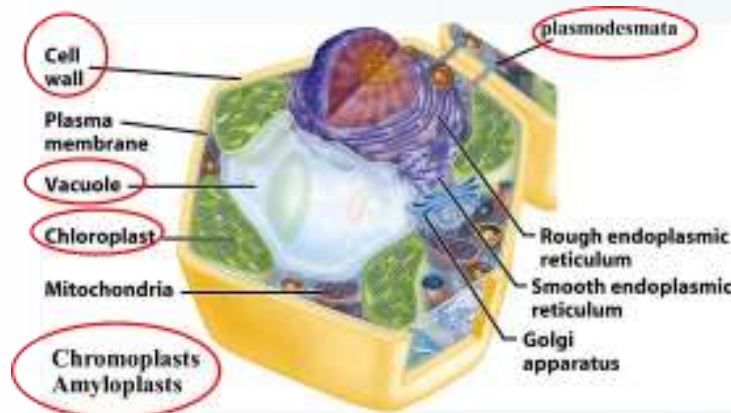


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# Slide evolution from passive to active learning

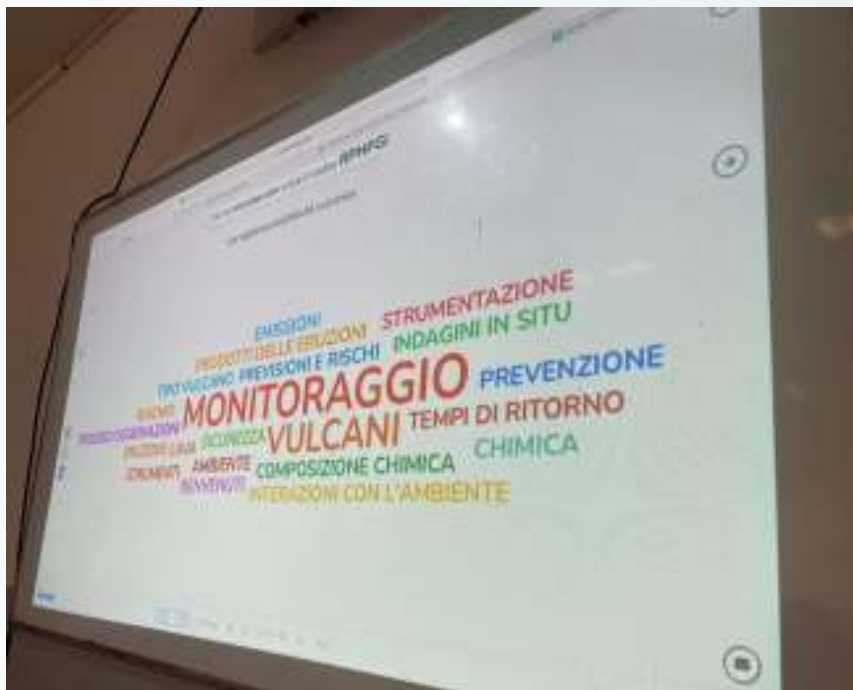
Low complexity

In che cosa differisce una cellula vegetale da una cellula animale?



# Formative Quizzes/Surveys and Computer-based Interaction Systems

Low complexity



LM Georichi e Georisorse



# Think-pair-share

Low complexity



Il Workshop Progetto Mentore 2019



# Realia

Intermediate complexity

“Objects and material from everyday life used as teaching aids”  
[Oxford dictionary (OED)]

LT Scienze Biologiche



# Manipulation in Teaching and Learning

Intermediate complexity

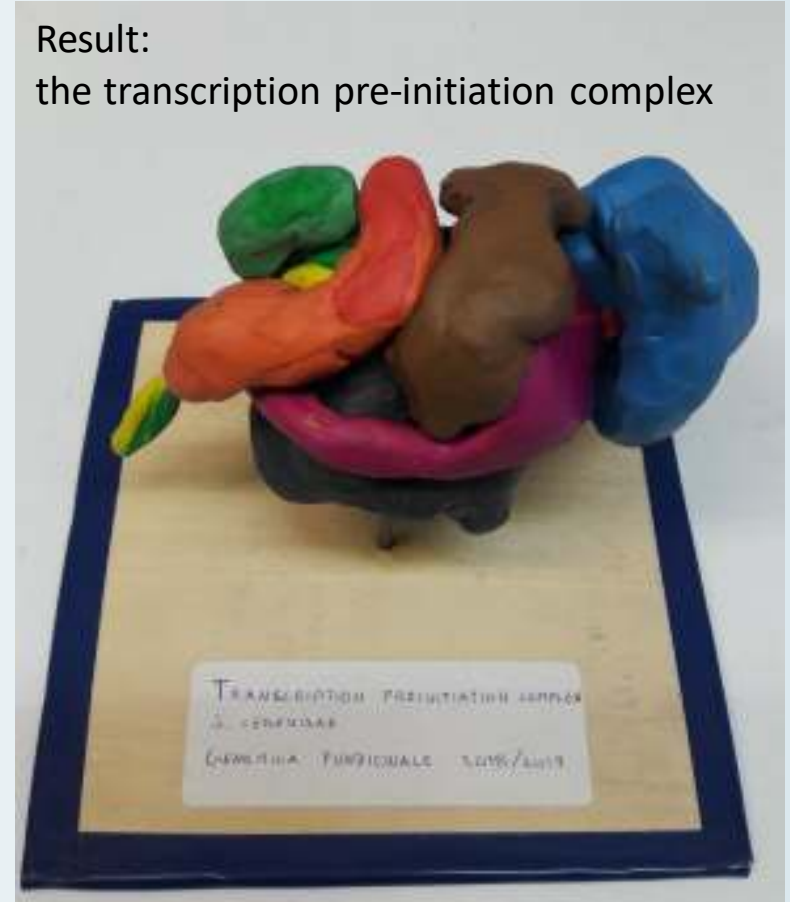


Modelling kits preparation

The use of plasticine modelling as a method of teaching and learning 3D structures

Colored plasticine was used for making 3D protein complex models with the aim of presenting an alternative method in teaching molecular structures.

Result:  
the transcription pre-initiation complex



# Debate

Intermediate complexity



LT Chimica



# Collaborative/cooperative learning

Intermediate complexity



II Workshop Programma Mentore 2019



V Workshop Programma Mentore 2022

# Problem or Project Based Learning

High complexity



IV Workshop Progetto Mentore 2021

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# Embodied Learning: “Anatomy of pilates”

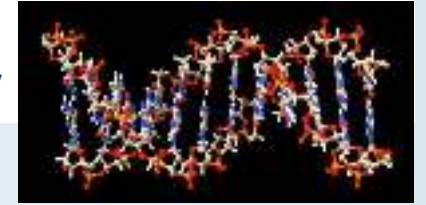
Creativity



LT Scienze Biologiche

# Role play: Theater in teaching and learning applied to molecular biology

Creativity



Chromatin remodeler

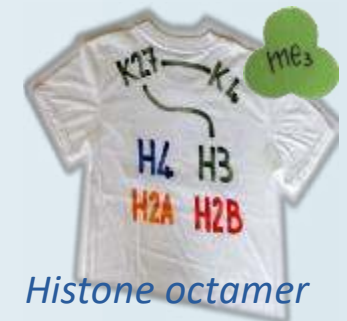


Remodeler in action! (20 sec video)

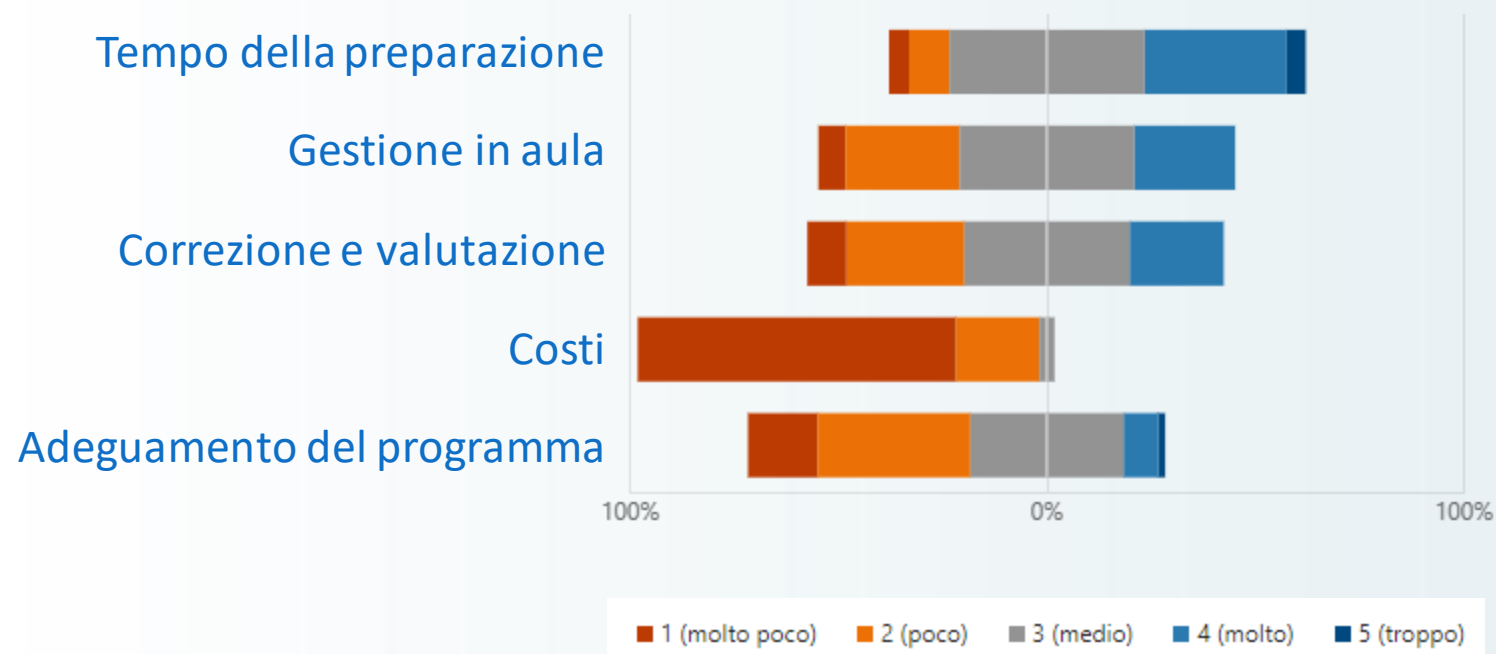
**Gene transcription activation set (in the nucleus of a cell).  
The students represent proteins, the rope represents the DNA.**



Chromatin loop cartoon

Histone octamer  
(nucleosome costume)

# Quanto è stata impegnativa l'introduzione delle attività innovative?



Riproporresti le attività che hai introdotto?



Si	49
Alcune si	13
No	1

# Students' point of view

Students have to

- actively participate,
- collaborate with their peers and teacher,
- study constantly during the course.

“Often, students seemed genuinely  
to prefer smooth-as-silk traditional lectures”  
[Deslauriers, director of science teaching and learning, Harvard]



# Students' point of view

Students may

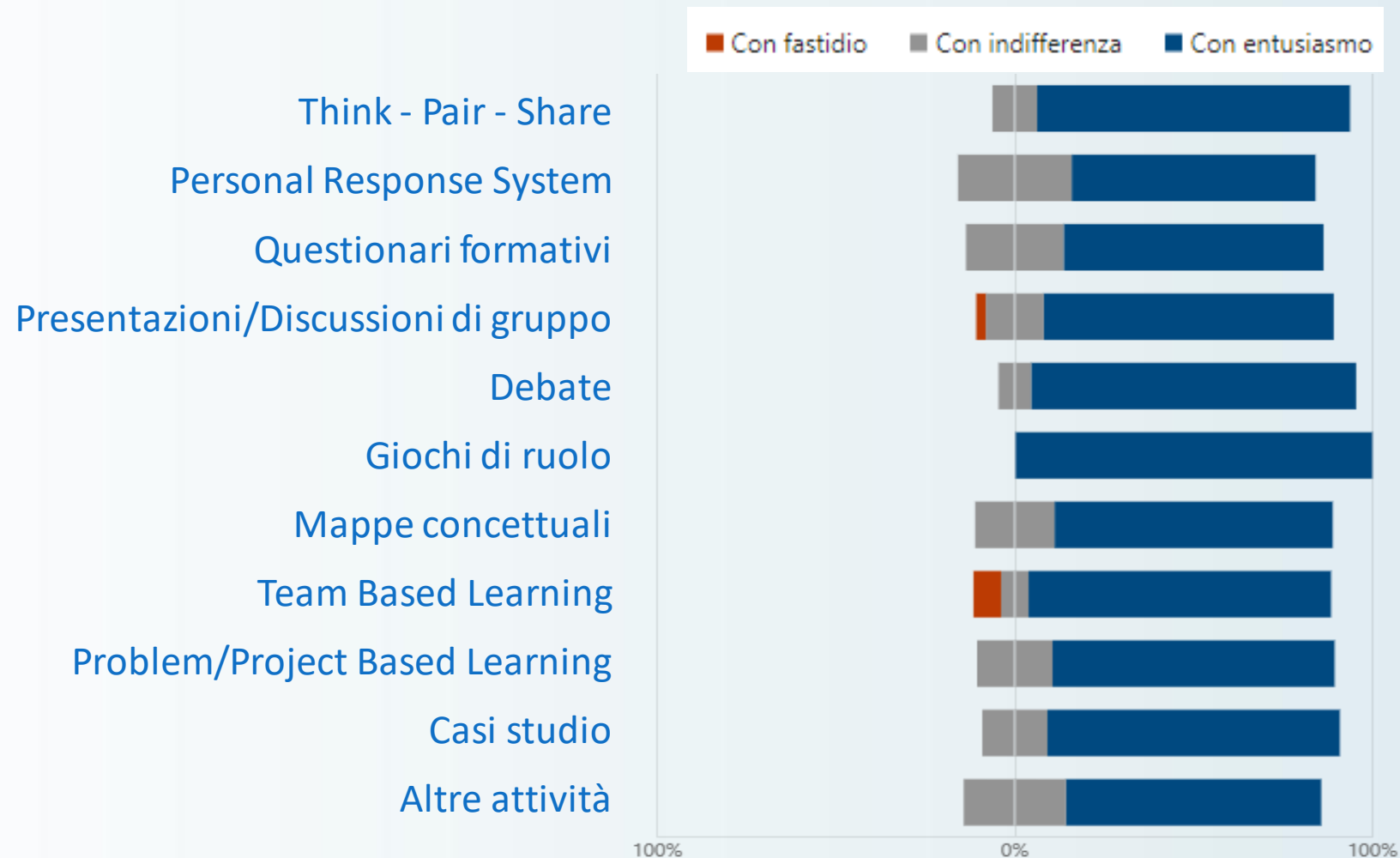
- resent having to expose themselves in front of their fellow students and their professor;
- not like to program their study and full involvement in the course activities with continuity.

"Active learning can both increase and decrease students' anxiety depending on the way it is implemented"

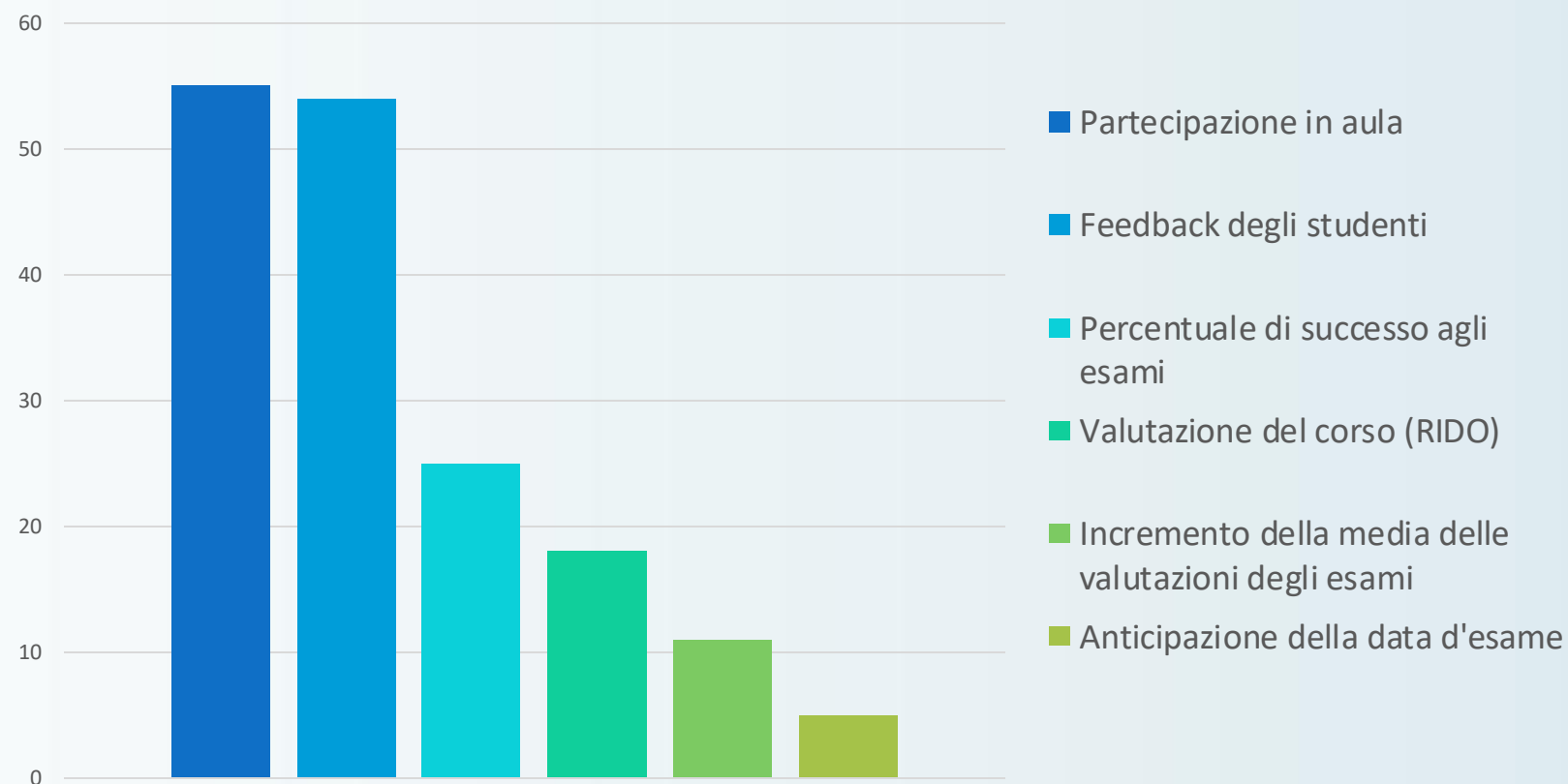
Cooper et al. International Journal of STEM Education (2018)



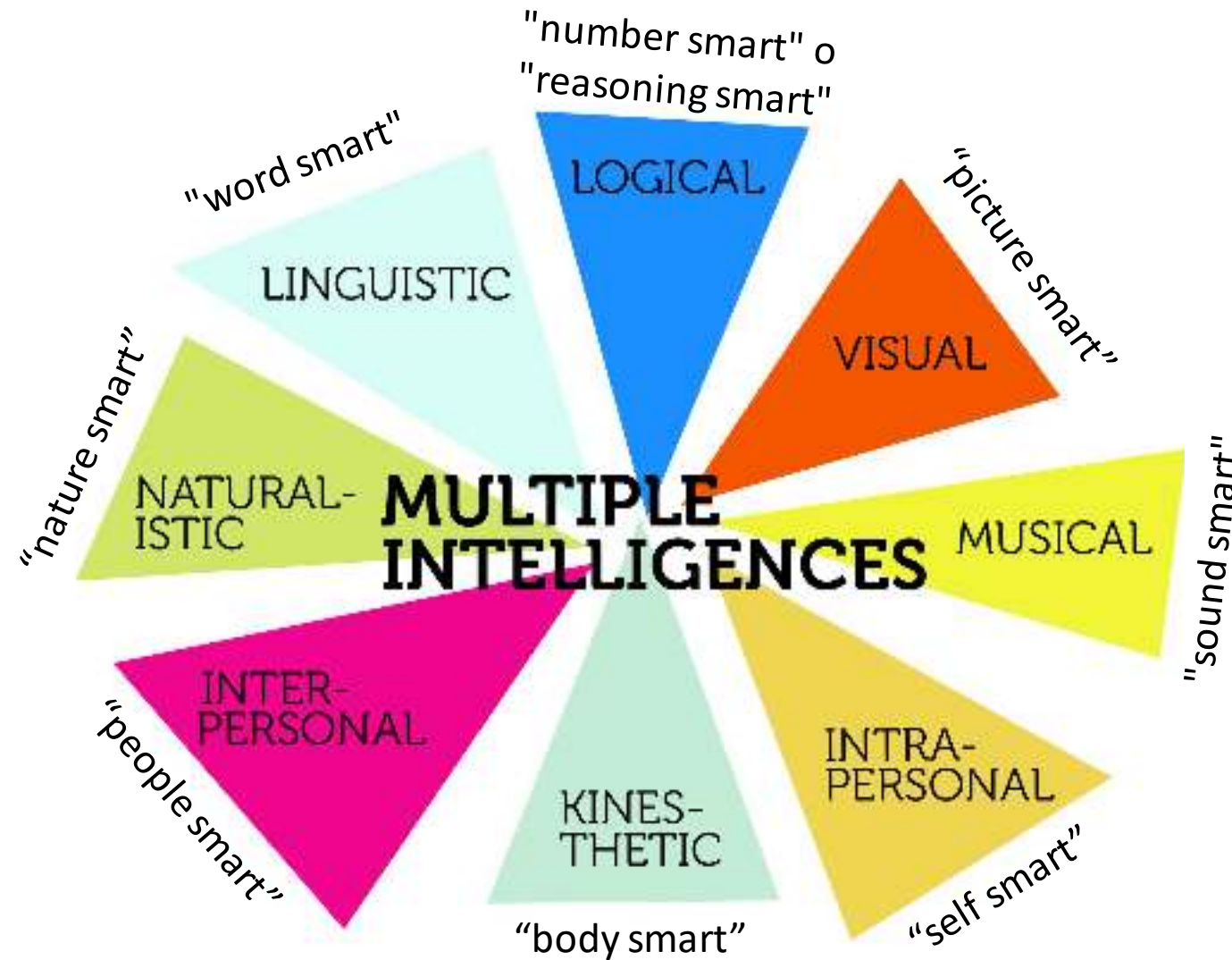
# Come pensi che gli studenti abbiano accolto le attività che hai introdotto?



# Su quali parametri basi la tua valutazione del successo delle attività introdotte?



Different kinds of activities can be chosen and structured in order to respect and involve students with different types of intelligence



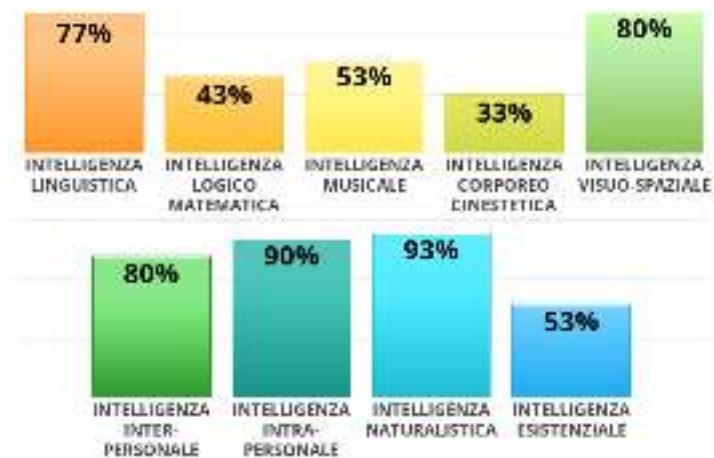
Intelligenza  
Esistenziale, o  
"cosmic smart"

# Multiple Intelligences Test

Maria



Lisa



Enzo



[Test sulle Intelligenze Multiple \(idrlabs.com\)](https://www.idrlabs.com)



# Pros of innovation

Motivation

Engagement

Multiple intelligences

Exam success rate

Team building improvement

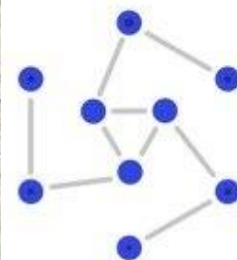
Long-term retention of knowledge



Fun for students and teachers



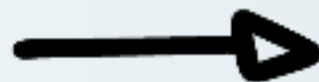
Thanks!



Mentore per  
la Didattica



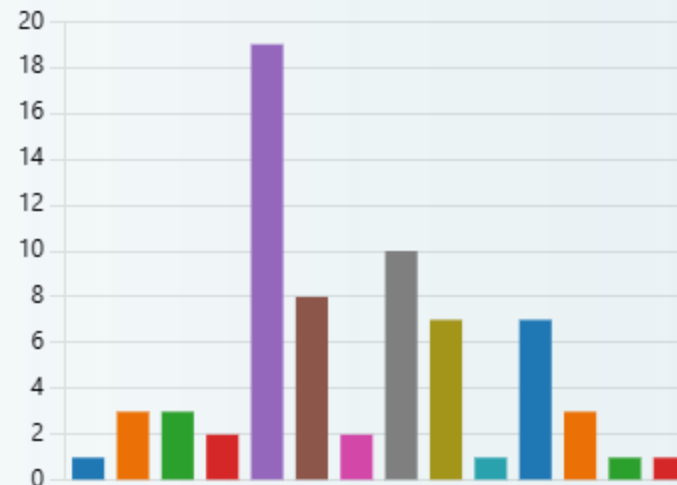




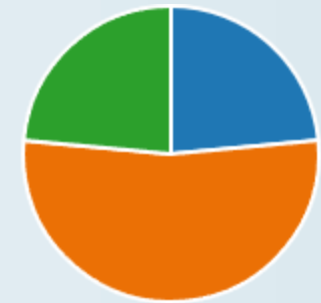
# Form results

A che area disciplinare appartieni?

Area 01 - Scienze matematiche ...	1
Area 02 - Scienze fisiche	3
Area 03 - Scienze chimiche	3
Area 04 - Scienze della terra	2
Area 05 - Scienze biologiche	19
Area 06 - Scienze mediche	8
Area 07 - Scienze agrarie e veter...	2
Area 08 - Ingegneria civile e Arc...	10
Area 09 - Ingegneria industriale ...	7
Area 10 - Scienze dell'antichità, ...	1
Area 11 - Scienze storiche, filos...	7
Area 12 - Scienze giuridiche	3
Area 13 - Scienze economiche e...	1
Area 14 - Scienze politiche e soc...	1



Da quanti anni partecipi al Progetto Mentore?



1-2	16
3-5	36
Più di cinque	16