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## Transfer of own experiences in mentoring- mentoring doctoral students who are collaborators on a scientific research project

Prof. dr. sc. Jasna Novak  
*HarISA Workshop How to Become a Good Mentor?*  
 5 February 2021.



prehrambeno biotehnički fakultet | faculty of food technology and biotechnology



UNIVERSITY OF ZAGREB  
 FACULTY OF FOOD TECHNOLOGY AND BIOTECHNOLOGY



Harmonization and Innovation in PhD Study Programs for Plant Health in Sustainable Agriculture –HarISA is a Erasmus+ project funded with the support of the European Union. Project Number: 598444-EPP-1-2018-1-HR-EPPKA2-CBHE-JP (2018-2472 / 001-001)

Source:  
 Nature PhD  
 Survey, 2019

# 36%

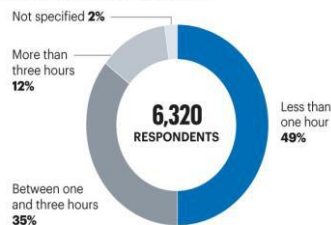
of respondents have sought help for anxiety or depression caused by PhD studies. One-third of them sought help from places other than their institution, and 18% sought help at their institution but didn't feel supported.

@nature

### BRIEF ENCOUNTERS

Interactions with a supervisor can be a crucial part of PhD training, but some students get much more individual time than others.

**Q: On average, how much one-to-one time do you spend with your supervisor each week?**



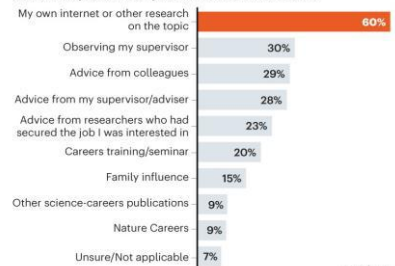
\*Percentages do not add up to 100 because of rounding.

@nature

### DO-IT-YOURSELF CAREERS GUIDANCE

When crafting a plan for their scientific futures, PhD students are more likely to rely on the internet than on advice from their peers or supervisors.

**Q: How did you arrive at your current career decision?**



@nature



## Research Lab



prehrambeno  
biotehnički  
fakultet | faculty of  
food technology  
and biotechnology



Sveučilište u Zagrebu  
University of Zagreb

PhD Jagoda Šušković, Full professor, Head of  
Laboratory

PhD Blaženka Kos, Full professor

PhD Jasna Novak, Full professor

PhD Andreja Leboš Pavunc, Assistant professor

Martina Banić, MSc

Katarina Zorić, MSc

Nina Čuljak, MSc



### TEACHING

[HTTP://WWW.PBF.UNI.ZG.HR/EN/DEPARTMENTS/DEPARTMENT\\_OF\\_BIOCHEMICAL\\_ENGINEERING/LABORATORY\\_FOR\\_ANTIBIOTIC\\_ENZYME\\_PROBIOTIC\\_AND\\_STARTER\\_CULTURES\\_TECHNOLOGY](http://www.pbf.uni.zg.hr/en/departments/departments_of_biochemical_engineering/laboratory_for_antibiotic_enzyme_probiotic_and_starter_cultures_technology)



### SCIENTIFIC RESEARCH - PROJECTS

Higher education partners:  
University of Helsinki, Finland  
University of Trieste, Italy  
University of Zadar, CRO  
University of Ljubljana, SLO  
University of Belgrade, Serbia  
INRA, France  
Faculty of Science, UniZG  
Centre for Research and Knowledge  
Transfer in Biotechnology



### KNOWLEDGE TRANSFER AND INNOVATION

Industrial partners:  
Belupo d.d.  
Podravka d.d.  
Neva Ltd.  
Jadran Galenski Laboratory  
ACIES BIO d.o.o, SLO  
IGA Technologies, Udine, Italy  
Prehrana, VŽ

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## Icebreaker: getting to know one other

### Please introduce yourself to the group

Jasna

### What do you hope to get out of this workshop?

expertise; personal empowerment; advance in mentoring

### Do you have any special requests for topic of discussion?

Motivation of PhD student

### Have you ever had a mentor?

Yes

### Have you mentored students before? If yes, how many?

Yes: 22 Bachelor students, 20 Master students, 5 PhD students

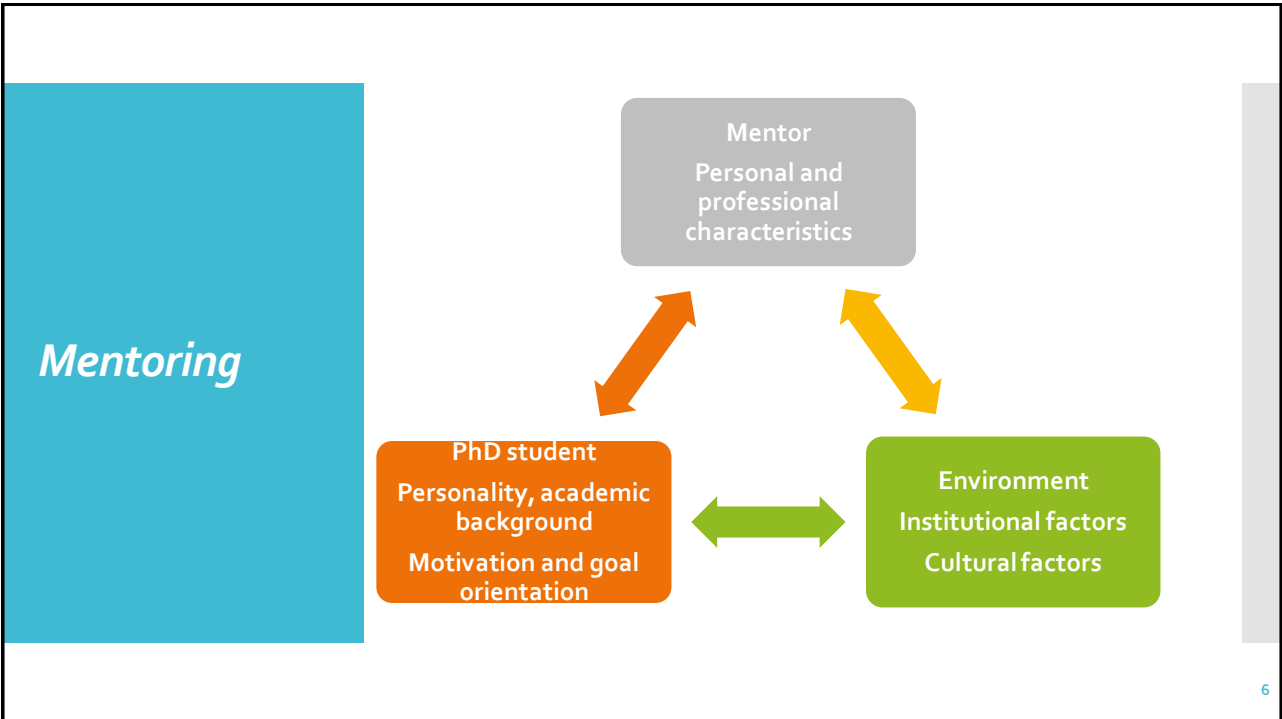
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**Mentor**

How do you describe mentor of PhD student in a single word?

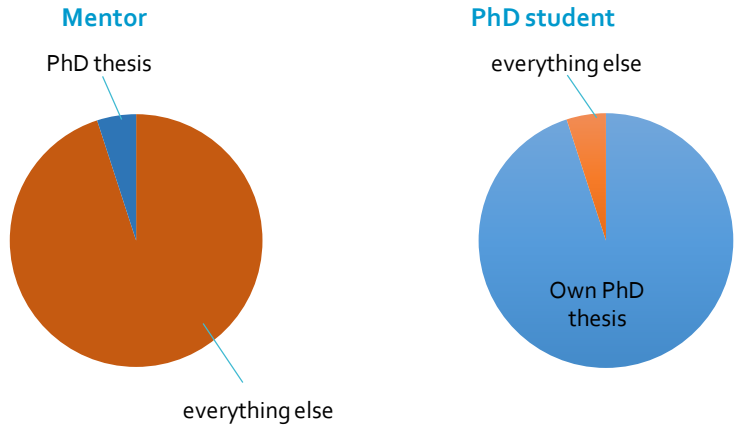
- Tutor
- Role Model
- Supporter
- Teacher
- Guide
- Coach
- Adviser
- Sponsor

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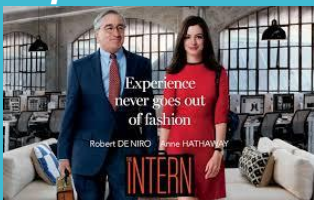



# Transfer of own experience


- mentee/PhD student
- mentor/supervisor





# Transfer of own experience





- 

What goals do you have for yourself as a academic mentor ?
- 

What goals do you have for your PhD students?
- 

Think of a time when a mentor offered you advice that was less than helpful. What might that person have considered before offering you that advice? How did receiving that advice make you feel?
- 

Think of a time when a mentor offered you advice that was particularly useful to you. What made that advice good? How did receiving that advice make you feel?
- 

Based on your own experiences receiving mentoring, what practices you might try to incorporate as a mentor yourself? What might you try to avoid?
- 

What steps could you take today to achieve these goals, both for yourself and your PhD students? Which goals do you need help to achieve, and do you know where you might start looking for that assistance?

## *Transfer of own experience*

### Types of mentoring scenarios:

- Co-mentor to a PhD student outside the institution (TT)
- Mentoring a PhD student who self-funded PhD studies (IB)
- Mentoring a PhD student employed at other institution (PĐ, JS)
- Mentoring of a PhD student collaborators on scientific project (KB)

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## *Mentoring of doctoral students collaborators on scientific research project*

### • CSF funded project

"Probiotics and starter cultures - surface proteins and bacteriocins,, (principal investigator: prof. dr.sc. Blaženka Kos

### • Doctoral student selection

"Young Researchers' Career Development Project– Training of Doctoral Students"

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*Mentoring of  
doctoral  
students  
collaborators  
on scientific  
research  
project  
(Croatian  
Scientific  
Foundation)*



Programme goals:

- Encourage training of new PhDs
- Increase number of young researchers participating in research projects
- Increase doctoral students' competences
- Strengthen mentoring capacities within research institutions
- Create new and improve existing knowledge as well as strengthen human resources essential for social development
- Develop a stable doctoral students' financing system

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*Mentoring of  
doctoral  
students  
collaborators  
on scientific  
research  
project*

Application  
and approval  
of mentor

• Step 1

Public call for  
doctoral  
students

• Step 2

Employment  
of doctoral  
student

• Step 3

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# Mentoring of doctoral students collaborators on scientific research project

## FORMA -MENTOR APPLICATION

Mentor candidate ✓



- A scientist with an academic or an academic-research title who obtained his PhD at least four years prior to the Call deadline.
- A scientist who is permanently employed at eligible organization (defined below)<sup>1</sup>.
- A principal investigator or a team member of a research project financed by the Foundation, UKF, various EU (FP7, Horizon 2020) and other competitive international research projects with which will be a base for the scientific development of doctoral student. The project must last at least 18 months after the application deadline.
- Scientific activities (publications, projects, patents, international cooperation).
- Mentorship experience.
- A detailed plan for the development of doctoral student's career in scientific research
- A detailed plan for financing education costs and the scientific research work of doctoral student.
- Call is open to all scientific fields.
- Candidates for mentors can apply only for one doctoral student per Call.
- Per each Call candidate can apply for only one doctoral student per project.

# Detailed plan for the development of doctoral student career in scientific research

Novak Jasna		Plan razvoja karijera mladih istraživača – izobrazba novih doktora znanosti		DOK-10-201	
Novak Jasna		Hrvatska zaklada za znanost		Uspostavljanje baze po autohtonih sojeva BMK bakteriocina definiranih dostupne i drugim znan gospodarstvu	
Novak Jasna		Plan razvoja karijera mladih istraživača – izobrazba novih doktora znanosti		DOK	
Novak Jasna		Hrvatska zaklada za znanost		Uruđbirana dise	
2		Doktorski studij A.4.5. Predaja doktorskog rada	A 4.5. Predaja doktorskog rada u uruđbeni zapisnik. (45-45)	Uvjerenje o akad doktora biotehni	
		Doktorski studij A.4.6. Javna obrana doktorskog rada	A 4.6. Prikazati dosadašnje rezultate prema planu aktivnosti navedenih u prijavi projekta te ispuniti i uruđbirati propisane formulare Zaklade.(47-47)	Doktorski r internetskim str Z	
		Doktorski studij A 4.7. Objava doktorskog rada na internetskim stranicama Sveučilišta	A 4.7. Prenijeti datoteku s doktoratom na internetske stranice Sveučilišta.(48-48)	Znanstveni međunarodno re	
		Ostalo A.4.8. Priprema 2. znanstvenog članka	A.4.8. Obrada rezultata i pisanje znanstvenog članka, tematski vezanog za doktorsko istraživanje	41-48	
		Zagreb.		Položen veći dio ispita studija.	
SF15B i referentnog soja <i>L. helveticus</i>		dobivenim aktivnostima navedenim pod A.1.11.; provođenje PCR reakcije s tako			

## Important aspects for mentoring



creating a work plan

professional development of the doctoral student

development of communication skills of the doctoral student

doctoral student motivation

fitting into the research team

## The primary responsibilities of mentors are as follows:

Assist the PhD student in formulating a program of study and research that culminates in the timely completion of the degree.

Attach a recommendation to any petition the PhD student may make

Serve as chair of the PhD student's examination committee

Meet with the student to review/complete the annual report of the PhD student's progress

Direct the PhD student's research for and writing



**Additional responsibilities deemed important include the following:**

Inform the PhD student about appropriate opportunities related to:

- professional development
- membership in professional organizations (CMS; CSB)
- networking
- publications
- assist the student in navigating University resources such as financial aid, housing opportunities...
- Creating a healthy research environment...

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**Encourage activities for career development - support to my PhD student**

• **Workshops:**

- *Fundamentals of Proteomics*, BioCentre

- *Winter School of Research Commercialisation* - Winter School Week 19

• **Popularization of science:**

PANDA project; Faculty open days

• **Conferences:** giving a research talk or presenting a research poster

- Power of microbes, Sveti Martin na Muri, Croatia (2019)

- Peptide Chemistry day, Univ. of Zg (2020)

• **Research scholarships**

FEMS - scientific training, Department of Life Sciences, Univ. of Trieste

• **Awards:**

Biotechnological Foundation Award



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## Progress reports

### ✓ Annual reports to Institution

- for scientific novices – opens possibility for scientific assistant

### ✓ Periodic reports to funding agency

- on the implementation of Plan and planned activities
  - after 18 mns,
  - 36 mns,
  - final report

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## Definition of quality mentor

- M** – model, serve as a role model and point out others
- E** – expert in the field
- N** – nurture, identify PhD's unique skills to make the most of these talents
- T** – teacher, provide constructive feedback
- O** – organisation, help PhD student avoid political landmines
- R** – reality, provide insight how Institution works and to develop an action plan to achieve goals

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## Mentor

### Quality mentors do not:

- Act like a dictator – be intolerant of others mistakes
- Judge
- Communicate poorly
- Don't follow through on commitments
- Break confidence and be disloyal
- Run the show
- Have a very biased viewpoint
- Need to be in control
- Get off track with the mentoring relationship

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## Mentor

### Quality mentors do:

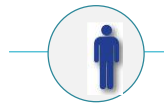
- Set high expectations
- Teach by example
- Offer constructive feedback
- Show genuine interest in PhD students and take time to hear them out
- Have willingness to accept another's viewpoint
- Provide learning experience
- Challenging behavior and rerouting thinking into more productive directions
- Exhibits patience and respect
- Foster networking and multiple mentors
- Offers secrets to how organisation really works
- Demonstrate a sense of humor

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<h2>Mentor/relationship</h2>	Mentor	Both	PhD student
	<ul style="list-style-type: none"> <li>• Offers support</li> <li>• Has expertise</li> <li>• Challenges the PhD student</li> </ul>	<ul style="list-style-type: none"> <li>• Respect and trust</li> <li>• Commitment</li> <li>• On-going and effective communication</li> <li>• Two-way learning</li> <li>• Problem solving</li> <li>• Share ideas and feedback</li> <li>• Find experience rewarding</li> </ul>	<ul style="list-style-type: none"> <li>• Shows enthusiasm and is proactive</li> <li>• Demonstrates good time management</li> <li>• Takes responsibility</li> <li>• Keeps the relationship on track to achieve goals</li> <li>• Shares any concerns or expectations openly</li> </ul>

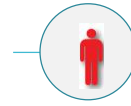
<h2>Reciprocal benefits</h2>	<h3>What are the benefits?</h3> <p>(Input your ideas in the columns below)</p>	
	Mentor	Mentee
	<p>Legacy</p> <ul style="list-style-type: none"> <li>feedback</li> <li>empowered</li> <li>Network</li> <li>Personal/professional development</li> <li>inspired</li> <li>Learn with the mentee</li> <li>Feeling of giving back</li> <li>Continued learning</li> <li>grow</li> <li>learn from your mentee's specialisms</li> <li>Confidence</li> <li>Solidify skills by putting them into practice</li> <li>getting involved in something new</li> <li>Pride, watching your mentee grow</li> </ul>	<p>Network</p> <ul style="list-style-type: none"> <li>focus</li> <li>empowered</li> <li>get feedback</li> <li>Gain/develop skills</li> <li>get help and guidance</li> <li>Gain wisdom</li> <li>inspired</li> <li>motivation</li> <li>confidence</li> <li>experience transfer</li> <li>Outside perspective</li> <li>Safe space for talking through problems/issues</li> </ul>

## Mentorship: pros/cons



Mentor

- Gain mentoring skills
- Expands knowledge
- Academic career advancement
- Investing in others
- Be part of success
- Gives personal satisfaction with research, work
- Enhances leadership skills
- Positive work environment



PhD student

- Gains valuable advice
- Fill gaps in knowledge
- Enhances expertise
- Improves communication skills
- Builds network
- Can help advance in career
- Develops maturity
- Increases confidence and autonomy

### What are some of the challenges in mentorship?

- funding issues
- project does not advance
- mentor/PhD student personality mismatch
- mentor is spread very thin
- environment is not conducive to success
- academic performance of the PhD student

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## Tips for mentorship

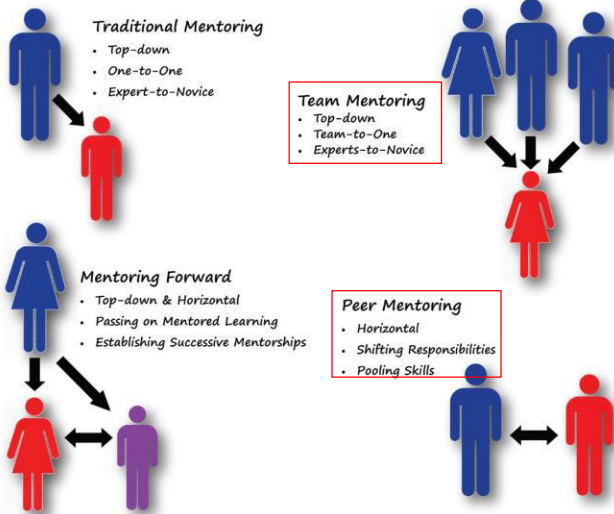


- Do have a convo about what the relationship will be for you and your PhD student: define, set expectations, etc.
- Share inspiring books! To help PhD student to explore their goals and expectations.
- Expectations - communicate them, e.g.:
  - practical - turn up on time, give notice if can not make it
  - prepare for meeting
  - up to the PhD student to do the work
  - be ok with being challenged!
- Define what the relationship *is not*, e.g.
  - It is not your job to work on the project
  - You are not a late-night/anytime available saviour or agony aunt
- Confidentiality
  - everything they say is confidential (unless illegal/potential harm!!) - reassure PhDs it is a safe space
  - use common sense, e.g. ask PhD students before sharing their project details to someone you want to connect them with in your network (& vice versa)

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Mentoring  
(adopted from  
Gee, 2017;  
Byrne & Keeffe,  
2002)

Different mentoring approaches



Self-  
assessment:  
how good a  
mentor are  
you?

(Nature's guide for  
mentors: Lee et al.,  
2007 Nature  
447:791-797)

Activity	Questions/Task	Example	What could be done better?
Appreciating individual differences	Give an example of an incident that illustrates your acknowledgement of individual difference?		
Availability	Give an example of the strategy you use to be available to your PhD students?		
Questioning	Describe how you last used active questioning to lead a PhD student towards solution?		
Celebration	When and how did you last celebrate a PhD student achievement?		
Building a scientific community	Describe a deliberate strategy you use to build your group as scientific community		
Skill development	Describe steps you take to develop the critical, writing and presentation skills of PhD student		
Networking	Describe one example of how you have introduced your PhD student into scientific network of your research area.		
Mentor for life	How many of the past PhD students are you in contact with?		

## Assessment of mentor and PhD student skills

Mentoring Skill		Quality of Skill			
		Excellent	Very Good	Adequate	Poor
<b>Part I. Shared Core Skills</b>					
1.	Listening Actively	5	3	1	0
2.	Building Trust	5	3	1	0
3.	Encouraging	5	3	1	0
4.	Identifying Goals and Current Reality	5	3	1	0
		Subtotal Core Skills			
16-20	Excellent core skills; you could coach others; concentrate improvement efforts on fine-tuning your style				
11-15	Very good skills; continue to polish those skills that will make you even more effective and desirable as a mentor or mentee				
6-10	Adequate core skills; work on your less-developed skills in order to have better relationships				
5 or under	You'll benefit from coaching and practice on core skills; acquire training or coaching, and observe others who have strong skills				
<b>Part II. Mentor-Specific Skills</b>					
1.	Instructing/Developing Capabilities	5	3	1	0
2.	Inspiring	5	3	1	0
3.	Providing Corrective Feedback	5	3	1	0
4.	Managing Risks	5	3	1	0
5.	Opening Doors	5	3	1	0
		Subtotal Mentor Skills			
20-25	Excellent mentor skills; you could coach others; concentrate improvement efforts on fine-tuning your style with particular mentees				
15-19	Very good skills; continue to polish those skills that will make you even more effective and desirable as a mentor				
10-14	Adequate mentor skills; work on your less-developed skills in order to acquire strong mentees and have better relationships with them				
9 or under	You'll benefit from coaching and practice on mentor skills; acquire training or coaching, and observe others who have strong skills				
<b>Part III. Mentee-Specific Skills</b>					
1.	Acquiring Mentors	5	3	1	0
2.	Learning Quickly	5	3	1	0
3.	Showing Initiative	5	3	1	0
4.	Following Through	5	3	1	0
5.	Managing the Relationship	5	3	1	0
		Subtotal Mentee Skills			
20-25	Excellent mentee skills; you could coach other mentees; concentrate any improvement efforts on fine-tuning your style with particular mentors				
15-19	Very good skills; continue to polish those skills that will make you even more effective and desirable as a mentee				
10-14	Adequate mentee skills; work on your less-developed skills in order to acquire strong mentors and have better relationships with them				
9 or under	You'll benefit from coaching and practice on mentee skills; get training or coaching, and observe others who have strong skills				

## Be a mentor who ensures motivated and satisfied doctoral student



## Conclusion

How do you describe mentor of PhD student in a single word?

It is not a single word

- Tutor
- Role Model
- Supporters
- Sponsor
- Teacher
- Guide
- Coach
- Adviser

