Challenges being a teaching assistant and how to deal with them

Excited
Centre for Excellent IT Education

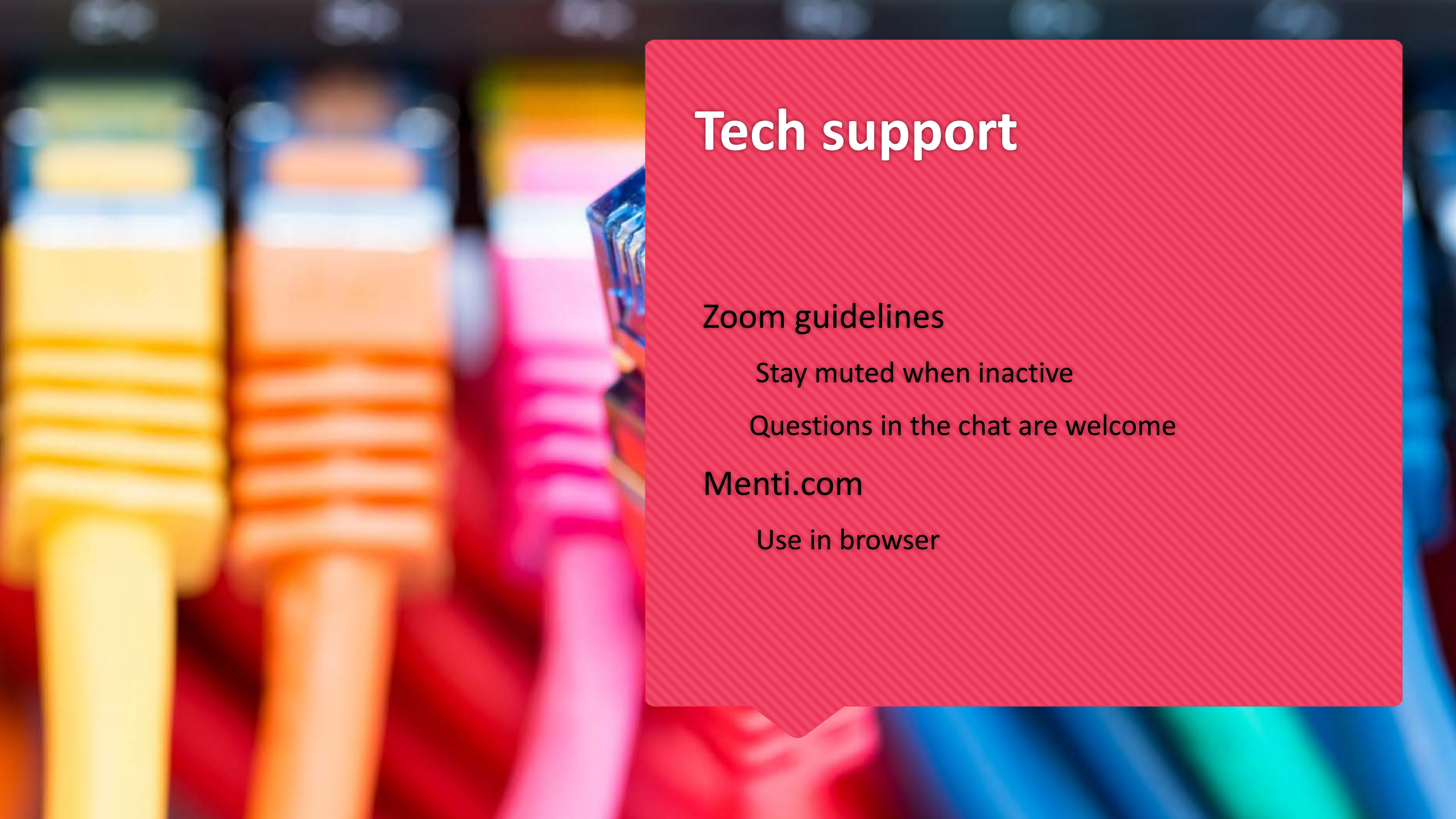
NTNU
Department of Computer Science

Findings from a European research project

by Madeleine Lorås, PhD Excited, NTNU

Learning outcome goals

- General knowledge of the main research on TAs
- Knowledge of the main challenges for TAs and tools to limit them
- Knowledge about reflecting on challenges and how to deal with them



Tech support

- Zoom guidelines
  - Stay muted when inactive
  - Questions in the chat are welcome
- Menti.com
  - Use in browser

About me

Catch IDI 2020. Photo: Kai T. Dragland, NTNU

- Almost done with a PhD in computing didactics at
- Trained teacher in computing and mathematics
- Research on first year computing students and how they study and learn
- Teaching duties in introductory programming courses and training teaching assistants

About you

What do you teach?

What experience do you have teaching?

Summarize your view on teaching in one word?

Menti.com Code: 7013 0587

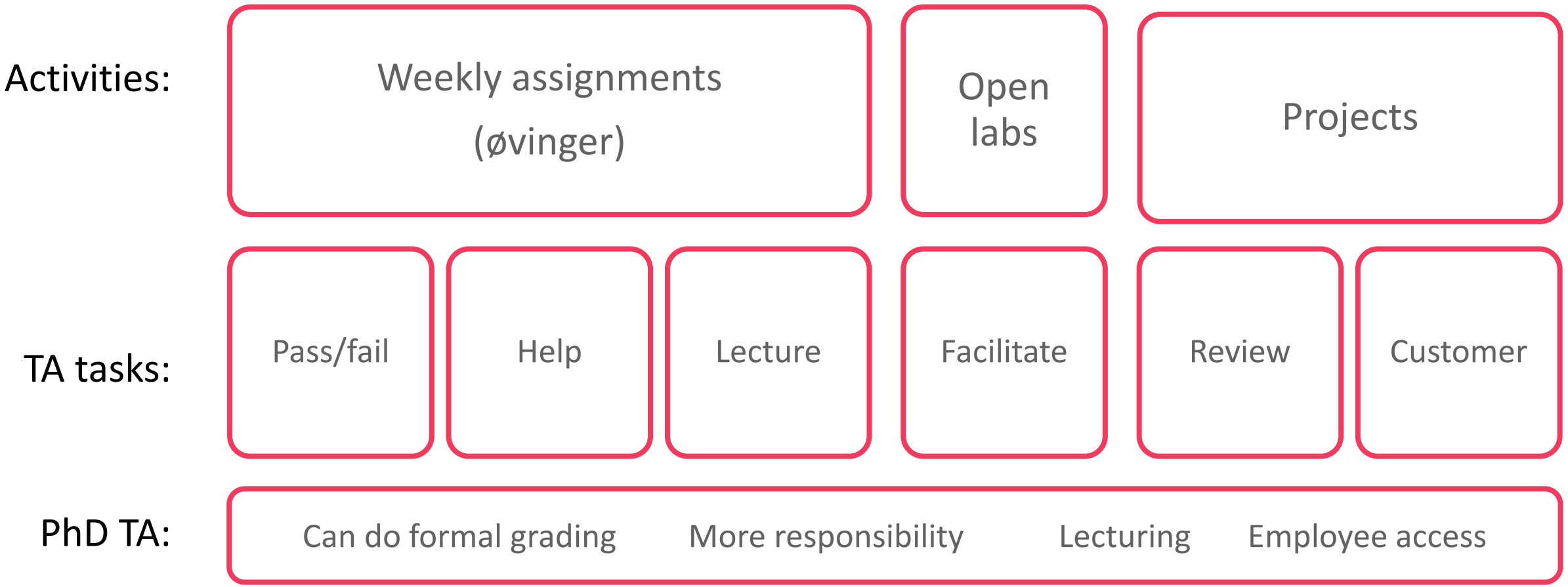
Definitions and context

What is a teaching assistant:

A student who is employed to assist the teaching and learning activities

Why teaching assistants:

Increasing student numbers, cheaper workforce and pedagogical benefits are among the main reasons.


Activities:
Weekly assignments
(øvinger)
Open
labs
Projects
TA tasks:
Pass/fail
Help
Lecture
Facilitate
Review
Customer
PhD TA:
Can do formal grading
More responsibility
Lecturing
Employee access

Research on TAs

+

Contributes to student success
(DeChenne et. al, 2015)

Often seen as main teacher, and the person they interact with the most
(Riese & Kann, 2020)

Being a student makes them more approachable
(Decker et. al, 2006; Ren et. al, 2019)

Closer to the students' understanding
(Ren et. al, 2019)

−

TAs view students as friends, challenging during assessment
(Riese & Kann, 2020)

Lack training in pedagogy and assessment
(Riese, 2018; Muzaka, 2009; DeChenne et. al, 2015)

TA challenges across Europe

A multi-national study to be published at the Innovation and Technology in Computer Science Education in June 2021

RQ1
Which **challenges** do TAs in computer science face?

RQ2
Are the identified challenges **similar or different** across institutions and countries?

Kunnskap for en bedre verden

Data: Reflection essays

"Describe **an interesting situation or interaction** you have experienced as an assistant. It can be something you found challenging, an ethical dilemma, or just something that has been on your mind. **Reflect on how you handled the situation**. What did you do well? What would you have done differently? Is there something you would like feedback on or questions you have?"

180 essays in total, collected from 2017-2020

Becoming a professional TA			
Expectations and responsibility	TA community	Professional development	Communication and language

Becoming a professional TA			
Expectations and responsibility	TA community	Professional development	Communication and language

Student focused challenges
Students with individual struggles
Students with different content knowledge
Students with an emotional presence
Students with different mindsets and abilities
Relationships to students

Becoming a professional TA			
Expectations and responsibility	TA community	Professional development	Communication and language

Student focused challenges
Students with individual struggles
Students with different content knowledge
Students with an emotional presence
Students with different mindsets and abilities
Relationships to students

Assessment
Developing or interpreting criteria for approval
Dealing with cheating and plagiarism
Providing useful feedback
Failing students
Help and assessment dilemma

Becoming a professional TA

Expectations and responsibility | TA community | Professional development | Communication and language

Student focused challenges

Students with individual struggles

Students with different content knowledge

Students with an emotional presence

Students with different mindsets and abilities

Relationships to students

Assessment

Developing or interpreting criteria for approval

Dealing with cheating and plagiarism

Providing useful feedback

Failing students

Help and assessment dilemma

Defining and using best practice

Teaching on the student level

Being well prepared and confident

Motivating confidence in students

Teaching CS content in a suitable way

Becoming a professional TA

Expectations and responsibility | TA community | Professional development | Communication and language

Student focused challenges

Students with individual struggles

Students with different content knowledge

Students with an emotional presence

Students with different mindsets and abilities

Relationships to students

Assessment

Developing or interpreting criteria for approval

Dealing with cheating and plagiarism

Providing useful feedback

Failing students

Help and assessment dilemma

Defining and using best practice

Teaching on the student level

Being well prepared and confident

Motivating confidence in students

Teaching CS content in a suitable way

Threats to best practice

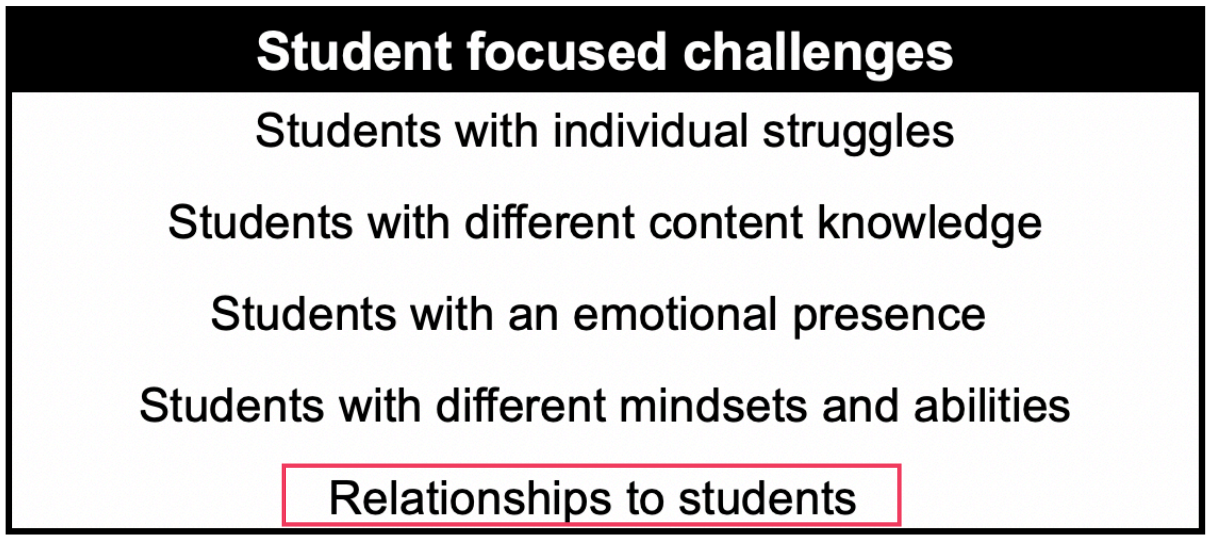
Nature of CS | Technical issues

Providing the right amount of help

Lack of content knowledge

Time constraints

A complete overview of themes, codes, and quotes can be found at https://doi.org/10.18710/O8FCIK



"It is not always so easy to grade their [close friends'] papers and I feel a conflict of interest while doing so. [...] It does not always feel fair that I spend so much time guiding my friends and not the rest of the students. It seems that the threshold for asking a friend through a FB-message is much lower than sending an email to an unknown teaching assistant."

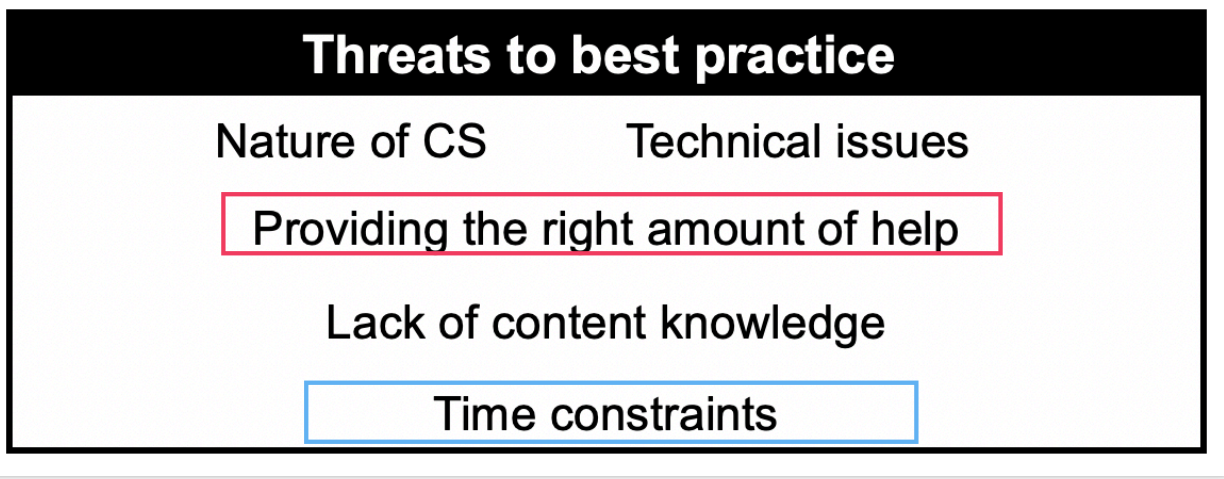
[TA 48, NTNU]

“I have a tendency to take over the students’ keyboard when I feel the time pressure. One should always take the time to make sure the student has understood the problem you have been helping them with and adding some constructive feedback.”

[TA 6, NTNU]

“In stressful situations, it can be easy to forget to take it slow to make sure the student understands fully what you are trying to help with. “

[TA 6, NTNU]



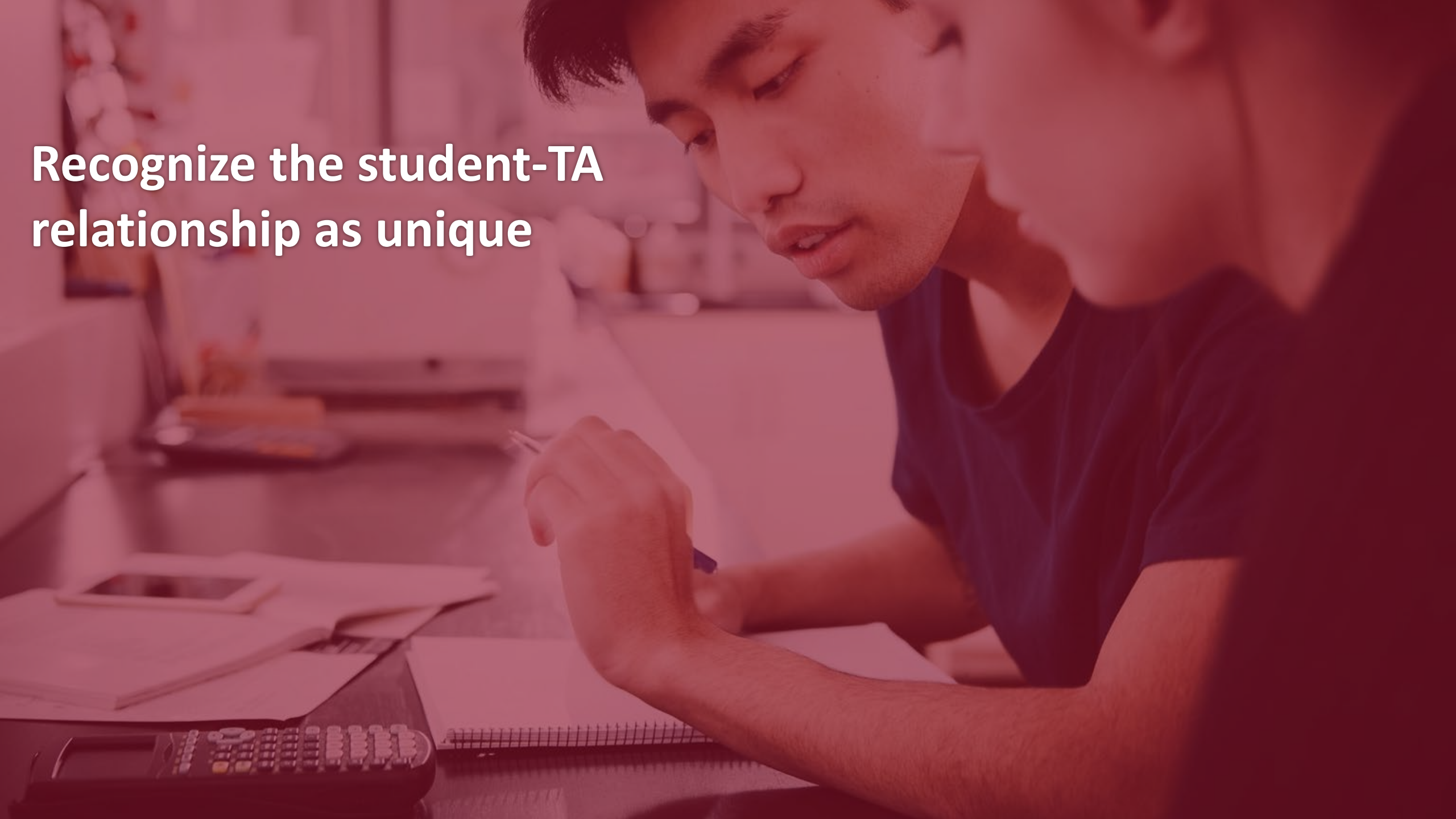
~~Institutional differences~~

The three institutions differed in size, assessment regime and TA roles; however, we found the **same challenges across all three.**

Be aware that best practice needs to be defined and spread

Acknowledge threats to best practice and address them

Dare to discuss ethical dilemmas and provide guidelines



Recognize the student-TA relationship as unique

TASK - part 1/2

Individual reflection

a)

What is one of your best practices

If you don’t have much experience teaching, think of a best practice you have experienced as a teacher

b)

Threats to this best practice

Why is this hard? What is stopping you or others from succeeding? What can be done to support you?


3 minutes
Best practice + threats to this practice

TASK - part 2/2

Group share

In a break-out room:

Each person shares their reflections

Discuss if there are any other threats or solutions

Be prepared to share your main reflections with everyone.


Share!

Thanks for participating!

Questions and comments are welcome.

Madeleine Lorås

madeleine.loras@ntnu.no

www.ntnu.edu/excited

Thanks to my co-authors:
Emma Riese
Martin Ukrop
Tomáš Effenberger

REFERENCES:

S. E. DeChenne, N. Koziol, M. Needham, and L. Enochs. 2015. Modeling Sources of Teaching Self-Efficacy for Science, Technology, Engineering, and Mathematics Graduate Teaching Assistants. CBE Life Sci Education 14, 3 (2015), 347–364. https://doi.org/10.1187/cbe.14- 09- 0153

Emma Riese. 2018. Teaching Assistants' Experiences of Lab Sessions in Introductory Computer Science Courses. In 2018 IEEE Frontiers in Education Conference (FIE).IEEE,SanJose,CA,USA,1–5. https://doi.org/10.1109/FIE.2018.8659243

Emma Riese and Viggo Kann. 2020. Teaching Assistants' Experiences of Tutoring and Assessing in Computer Science Education. In 2020 IEEE Frontiers in Education Conference (FIE). IEEE, Uppsala, Sweden, 1–9. https://doi.org/10.1109/FIE44824. 2020.9274245

Adrienne Decker, Phil Ventura, and Christopher Egert. 2006. Through the Looking Glass: Reflections on Using Undergraduate Teaching Assistants in CS1. In Proceedings of the 37th SIGCSE Technical Symposium on Computer Science Education (Houston, Texas, USA) (SIGCSE '06). ACM, New York, NY, USA, 46–50. https://doi.org/10.1145/1121341.1121358

Yanyan Ren, Shriram Krishnamurthi, and Kathi Fisler. 2019. What Help Do Students Seek in TA Office Hours?. In Proceedings of the 2019 ACM Conference on International Computing Education Research (Toronto ON, Canada) (ICER '19). ACM, New York, NY, USA, 41–49. https://doi.org/10.1145/3291279.3339418

Valbona Muzaka. 2009. The niche of Graduate Teaching Assistants (GTAs): perceptions and reflections. Teaching in Higher Education 14, 1 (2009), 1–12. https://doi.org/10.1080/13562510802602400