When designing interdisciplinary or transdisciplinary education, it is important to consider: ● **Complexity**, ▲ **Uncertainty** and ■ **Value divergence**.

For each term, indicate which level applies to your case. What insights does this provide? [3] Then return **to Exercise 4**.

PROBLEM: Scale, degree of change and fragmentation			
● **System**	The case concerns **individuals**, a group or an organisation	☆☆☆☆☆	The case involves **many stakeholders**: residents, businesses, governments, at a local, national or international level
▲ **Change**	The case **remains constant**, without drastic changes	☆☆☆☆☆	During the course of researching the issue, **the circumstances change**
■ **Fragmentation**	**The stakeholders are known** and are in contact	☆☆☆☆☆	At the beginning, the **number of stakeholders is not yet clear** and they have no mutual contact

PROCESS: Extent to which adaptive collaboration and participation is expected			
● **Transdisciplinary**	A **limited number** of groups work together for example two study programmes	☆☆☆☆☆	A **wide range of target groups** work together, within and outside the student's educational institution
▲ **Adaptive**	Merging expertise **requires minor adjustment**	☆☆☆☆☆	Creating a joint end result **requires constant adjustment**
■ **Participative**	The process is worked on in consultation	☆☆☆☆☆	Choices are made, discussions are held and adjustments are made in **constant coordination** with the stakeholders

OUTCOMES: Extent to which the outcome of the approach is integrated, preliminary and collaborative			
● **Integrated**	The perspectives of stakeholders are **researched and taken on board**	☆☆☆☆☆	A **deep analysis** of perspectives is expected. These should be an integrated part of the outcome
▲ **Preliminary**	The outcome is **not fixed in advance**; it depends on the stakeholders	☆☆☆☆☆	The **outcome is not fixed** but keeps changing due to new insights during the journey
■ **Collaborative**	The outcome has been **aligned with** stakeholders	☆☆☆☆☆	The **outcome** is a **new 'working practice'** created with the stakeholders

Legend: ★☆☆☆☆ Beginner ★★★☆☆ Moderate ★★★★★ Advanced

This worksheet was created by Marit Rensink **marit.rensink@ru.nl** as an assignment during the Educational Leadership Program.

Sources:
[1] Akkerman & Bakker ⓝ. 2011; in:
[2] Veltman, M. E., van Keulen, J., & Voogt, J. M. (2019). Design principles for addressing wicked problems through boundary crossing in higher professional education. Journal of Education and Work, 32(2), 235-255.
[3] Veltman, M. E., van Keulen, J., & Voogt, J. M. (2021). Using problems with wicked tendencies as vehicles for learning in higher professional education: Towards coherent curriculum design. The Curriculum Journal, 32(3), 559-583.

Developing interdisciplinary education

This tool helps lecturers and educational developers to **reflect on the development of their interdisciplinary education* by following exercises.** The exercises teach you about the characteristics of interdisciplinary education and guide you in making choices. It is preferable to discuss the five exercises together with colleagues or an educational consultant.

#youhaveaparttoplay

Our society is facing increasingly complex problems and it is important to teach students how to deal with them properly. In interdisciplinary and transdisciplinary education*, traditional boundaries are broken down, such as those between different study programmes, disciplines or institutions, which encourages new ideas and innovative solutions. For that reason, it is important that students develop competences through which they learn to look at and address complex problems from different perspectives. Examples including collaboration, combining knowledge sources and involving others in projects. This often requires us to adapt our education. It is less about achieving an end result or solving a complex problem, but rather about intermediate solutions and evaluating a student's choices and actions. This way, we enable students to **add value to a case and thus to the world around them.**

* Although there are multiple definitions, 'interdisciplinary education' is considered to involve a diverse group of students from various study programmes learning together from and with each other, and 'transdisciplinary education' is generally defined as working and learning together with societal partners, such as citizens, businesses and governments.

1 EXERCISE 1

Briefly describe the education you will be working on.

To **discuss** the tool and receive guidance on developing interdisciplinary education, you can contact **tlc@ru.nl**.

In addition to this tool, there are many more **tips, ideas and articles** on interdisciplinary education. **Go ahead and research them!**

ACTIVATE LEARNING MECHANISMS

How do you enable students to learn and work interdisciplinarily? [1]

Identification

Students **gain insight** into their own (additional) contribution to an issue and their commonality/overlap with others (common ground).

Coordination

Students actively devise ways and means to **encourage collaboration with others** and facilitate communication with each other, and they also deploy these means.

Reflection

Students take targeted action to understand others, learn together and **initiate reflection,** and are able to act from multiple perspectives.

Transformation

Students **develop new knowledge, experience and working practices,** which they would not have been able to develop without others and other perspectives.

EMBEDDING BUILDING BLOCKS

How do you embed these learning mechanisms in your education? [2]

Working methods and activities

Make sure that an in-depth analysis of the case is necessary and facilitate this with working methods such as interviews/observations/theoretical depth.

Boundary crosser

Pay attention to this role; a facilitator who is capable of translating different perspectives in the case and asks questions about role division, hierarchy, culture and language.

Constructive tension

As a supervisor, work adaptively and hone the case when new questions arise, breakthroughs are achieved or circumstances change. The case must balance with what students can handle.

Collaboration across boundaries

Facilitate collaboration across the boundaries of study programmes or institutions and highlight sharing different perspectives and expectations in the case.

Open end

!

Make sure that the outcome of the case is experienced as being unknown and unpredictable. Have students map out their competences and choose their own assignment direction based on that.

Aids

Support cross-boundary collaboration by using tools that enable coordination, identification and reflection. Examples are meetings, work agreements, instructions, models and documents (boundary objects).

Student learning process

Focus on the student's learning process by offering experience and reflection. It is about the process in which working together and adapting to circumstances are important, not the end product.

Problem dimensions

Add complexity, uncertainty and value divergence *(see final page).*

Constructive alignment

Align learning objectives, working methods and assessment/evaluation.

COMPLETE EXERCISES

2 EXERCISE 2

Think together about how to embed the four learning mechanisms and building blocks in the **learning objectives**, **assessment** and **working methods.** Write this down.

AMBITION LEVEL

Interdisciplinary education takes many forms. It is important that you think carefully about your **'ambition level' in advance: how complex is the case that students will be working on?** By consciously making a choice about what your ambition level is, you prevent students from finding a case too vague, too complicated or too nerve-wracking so that the right learning outcome will not be achieved.

3 EXERCISE 3

Answer the questions on the **other side** .

4 EXERCISE 4

Does your ambition fit: your students, your lecturers, your learning objectives, assessment and working methods? Write your conclusion.

5 EXERCISE 5

Finally, read the tips on this page. Note down which ones you will start using.

READ TIPS

TIP
Difference in language and concepts: pay attention to inter-disciplinarity.

BENEFIT
Acquiring skills **increases confidence** among students.

BENEFIT
Lecturers and assignment-givers **learn together too.**

BENEFIT
Students get a **better idea of their career perspectives.**

PITFALL
Students go 'solo to the finish line': supervise them in coordination with stakeholders.

PITFALL
A wide-ranging case with an open-end is often seen as 'vague'.

PITFALL
As the lecturer, steering too much towards the end result. Learning mainly happens during the process of searching, trying, adapting and collaborating around a case. There is no single right way.

PITFALL
The students choosing a solution to the problem too fast: Supervise them in analysing the different perspectives.