A Suite of Assessment Tools for Thinking
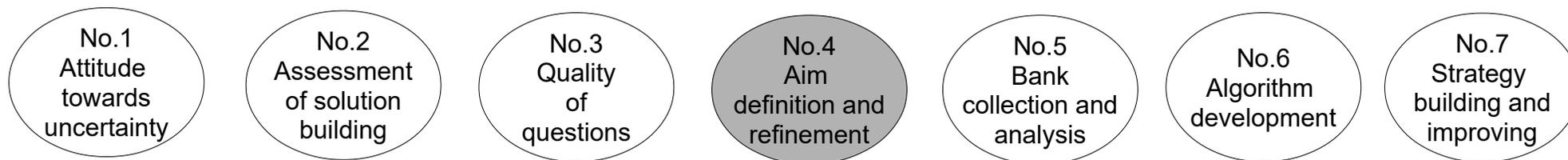## Aspects of Metacognitive Competence Development. Aspect No.4: aim definition and refinement

No.1 Attitude towards uncertainty

No.2 Assessment of solution building

No.3 Quality of questions

No.4 Aim definition and refinement

No.5 Bank collection and analysis

No.6 Algorithm development

No.7 Strategy building and improving

Aim definition and refinement is seen as an effective tool for solving any learning problem students are working on. It is an integral part of the competence underlying an independent learning activity. Learners' aims and objectives are useful when they are defined by the learners themselves rather than offered by the teacher or presented in the study materials. In order to learn to set and improve one's aims and objectives, the learner should be given this opportunity on a regular basis when working with different subject matter at various stages of learning.

This material can help the teacher
- plan lessons aimed at the development of learners' competence of setting and improving own aims and objectives;
- assess the quality of aims and objectives proposed by learners;
- create a self-assessment tool for learners to help them evaluate the quality of own aims and objectives.

The tool will be useful for the teacher who:
- believes in a learner-centred approach and follows it in his/her work;
- accepts the importance of developing the metacognitive competence of learners along with mastering the subject matter;
- wants the learners to be able to set and improve their own aims and objectives.

Stages of developing the competence of setting and improving one's aims and objectives
A general path

Aims and objectives depend on the stage of competence development a leaner is working on. Formative assessment should help the learner move towards the next stage. This is the general path to follow for the teacher and the leaner.
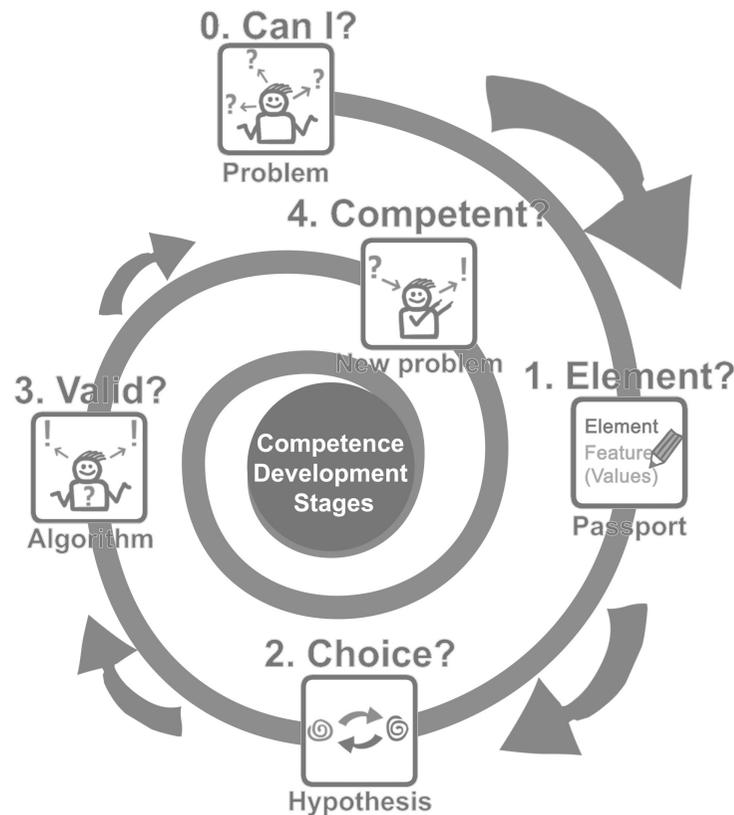
0. Can I? Accepting a learning problem.
Learner's definition of an aim for solving a research element learning problem.

1. What am I dealing with? Creating a passport of an element
Learner's refinement of his/her aim for formulating a hypothesis for solving the learning problem.

2. How to make a choice? Formulating a hypothesis
Learner's refinement of his/her aim for developing an algorithm for solving the learning problem.

3. Does my hypothesis work? Developing an algorithm
Learner's refinement of his/her aim for the automatic use of the algorithm and building a strategy for solving the learning problem.

4. Do I still need the algorithm? Becoming competent and facing a new problem.
Learner's refinement of his/her aim for optimising the algorithm, moving towards a new problem and improving the strategy for solving the learning problem.

Stages of developing the competence of setting and improving one's aims and objectives
A specific path

Most learners are not good at setting and improving their aims and objectives. When invited to do it, they are either unable to come up with anything or offer a very general response that is not helpful. This is marked as Level 0 in the table below.

At each stage of competence development, the teacher's task is to help the learner move towards level 3. This is the path for improvement both the teacher and the learner should take.

Stage 0. Can I? Accepting a learning problem.

Aspect of competence development	Scale	Level competence development	Example (English as a foreign language)
Learner's definition of an aim for solving a research element learning problem	0	The learner can't define his/her learning aim.	*How can I have an aim if I don't know anything yet.*
	1	The learner defines his/her learning aim too widely. S/he uses general phrases, does not define a research element or formulate a specific learning problem.	*I want to improve my grammar. I want to learn irregular verbs.*
	2	The learner defines his/her learning aim including the research element. The formulated learning problem is not specific enough.	*I want to learn to correctly use verb forms to speak about the past.*
	3	The learner defines a very specific aim for his/her further work on solving the research element learning problem. The formulated learning problem is clear and specific.	*I want to understand the difference between the grammar forms DID and HAVE DONE when speaking about the past.*

Stage 1. What am I dealing with? Creating a passport of an element

Aspect of competence development	Scale	Level competence development	Example (English as a foreign language)
Learner's refinement of his/her aim for formulating a hypothesis for solving the learning problem	0	The learner doesn't change his/her aim or the aim is absent.	*I want to improve my grammar.*

	Scale	Level competence development	Example (English as a foreign language)
	1	The learner reformulates his/her aim including the research element, but the definition is too general and a specific learning problem is not defined.	*I want to be able to find verbs that refer to the past.*
	2	The learner reformulates his/her aim including the research element, but the definition of the learning problem lacks precision.	*I want to differentiate between different forms of verbs that refer to the past.*
	3	The learner reformulates his/her aim including the research element and defining a specific learning problem s/he is going to work with.	*I want to be able to choose between the forms DID or HAVE DONE when referring the past.*

Stage 2. How to make a choice? Formulating a hypothesis

Aspect of competence development	Scale	Level competence development	Example (English as a foreign language)
Learner's refinement of his/her aim for developing an algorithm for solving the learning problem.	0	The learner doesn't change his/her aim or the aim is absent.	*I want to improve my grammar.*
	1	The learner reformulates his/her aim but s/he uses general phrases failing to define a specific learning problem.	*I want to have a rule to speak about the past.*
	2	The learner reformulates the aim in view of his/her specific learning problem, but the aim does not clearly focus on flaws of the hypothesis and their reasons.	*I want to stop making mistakes when choosing between DID and HAVE DONE when referring to the past.*
	3	The learner reformulates the aim if view of his/her specific learning problem. The aim clearly focuses on flaws of the hypothesis and their reasons.	*I want to understand why I should choose DID even if there're no words in my sentence that show that the action was in the past.*

Stage 3. Does my hypothesis work? Developing an algorithm

Aspect of competence development	Scale	Level competence development	Example (English as a foreign language)
Learner's refinement of his/her aim for the automatic use of the	0	The learner doesn't change his/her aim or the aim is absent.	*I want to improve my grammar.*
	1	The learner reformulates his/her aim but uses general	*I want to be able to to automatically choose the*

		phrases. S/he fails to define a specific learning problem.	right form when speaking about the past.
algorithm and building a strategy for solving the learning problem.	2	The learner reformulates his/her aim, focusing on the mistakes in algorithm application. S/he refers to the strategy for solving the problem but it is not the primary intention.	*I want to be able to automatically choose DID even if the time of action is only implied in the context. I want to have a strategy for solving the problem of choice.*
	3	The learner reformulates his/her aim, focusing on the mistakes in algorithm application, removal of their causes and building a strategy for solving the learning problem.	*I want to be able to easily understand the context when the idea of the finished time is implied and choose DID without hesitation. I would like to sum up all my steps into a strategy for solving the problem of choosing between DID and HAVE DONE.*

Stage 4. Do I still need the algorithm? Becoming competent and facing a new problem.

Aspect of competence development	Scale	Level competence development	Example (English as a foreign language)
4. Learner's refinement of his/her aim for optimising the algorithm, moving towards a new problem and improving the strategy for solving the learning problem	0	The learner doesn't refine his/her aim for moving to a new problem or improving his/her strategy for solving the learning problem. The aim may be absent.	*I want to improve my grammar.*
	1	The learner cannot independently refine his/her aim for moving to a new problem and improving his/her strategy for solving the learning problem. S/he needs help from the teacher or classmates.	*I want to be able to choose the right form automatically but I still make mistakes and don't know what to do with them.*
	2	The learner independently refines his/her aim for moving to a new problem and improves his/her strategy for solving the learning problem. S/he sometimes asks the teacher or classmates for help.	*I want to understand when my algorithm doesn't work and find a strategy for solving this new problem.*
	3	The learner independently refines his/her aim for moving to a new problem and improves his/her strategy for solving his/her learning problem.	*I want to understand the limits of my algorithm and come to the new problem I have to work on. I also plan to improve my strategy for dealing with the problem by applying it at each step of working on the new problem.*