

# Creating a Catalyst for the Development of Knowledge Work Competence

*Daniel Andriessen*  
*INHOLLAND University of professional education*

*Linda Johnson*  
*INHOLLAND University of professional education*

*With the rise of the knowledge-based economy, Higher Education Institutions not only have to produce (under)graduates that are skilled in their profession but who also are competent as knowledge workers. This study focused on the enabling competences of the knowledge worker. Our aim was to develop a framework of enabling competences of knowledge work and to devise instruments to help undergraduate students create awareness of their own areas of competence in relation to knowledge work. We developed a Personal Priority Questionnaire (PPQ) that can be used in a one hour facilitated group discussion, and a Personal Mastery Questionnaire (PMQ) that can be used for individual awareness raising. We did a preliminary test of the PPQ within the competence-based educational program of a university of professional education in The Netherlands and found that facilitated group discussion seems to be an effective method of raising awareness in relation to the competences of the knowledge worker.*

Keywords: Competences, Knowledge worker, Knowledge work, Awareness

With the rise of the knowledge-based economy, Higher Education Institutions (HEIs) not only have to produce (under)graduates that are skilled in their profession but also competent as knowledge workers. The ability to solve problems within non-routine tasks (Elkjaer, 2000) requires competence in finding, handling, and creating relevant knowledge. These enabling competences of the knowledge worker need to be embedded in the curricula of HEIs and the students must be made aware of the importance of acquiring these competences within their studies.

This study focused on the enabling competences (Bartram & Roe, 2005) of the knowledge worker. Our aim was to develop a framework of enabling competences of knowledge work and to devise an instrument to help undergraduate students create awareness of their own areas of competence in relation to knowledge work. We tested the instrument within the competence-based educational program of a university of professional education in The Netherlands.

In this paper, we look first at the concept of the knowledge worker as a generic subset of all workers by exploring the characteristics of the knowledge worker and the environment in which such workers appear to thrive best. We then turn to the notion of competence, presenting some of the findings in this field and putting our own case for subscribing to a definition of competence which is based on four components: knowledge, skills, attitude and judgement. We focus on the enabling competences

(Bartram & Roe, 2005) which we see as being generic and common to knowledge workers across the range of professions and professional contexts in which knowledge workers are found. The dangers associated with the decontextualisation of competences are given consideration and the role of the facilitator in assisting the learner in grounding his or her exploration of personal competences in an appropriate professional context is described. Our work has centred on the development of an awareness-raising tool for use by undergraduates as an aid to meaningful reflection on their own set of knowledge work competences. The article further contains a description of this tool and our observations based on our preliminary testing of it among a sample of undergraduate students in Dutch higher education.

## **Competences of Knowledge Work**

### ***The knowledge worker***

The knowledge worker is in our usage of the concept a generic term which applies not to one profession or occupation. Knowledge workers are a subset of all workers. This subset cuts across the panoply of professions and occupations with which we are familiar. Our definition of what a knowledge worker is, concurs largely with that of Harrison and Kessels (2004) “any one who contributes to the core of economic activity in an organisation whose profitability and progress depend primarily on effective knowledge work.” To this must be added the aspect of knowledge production and, with Kessels (1996), we find that knowledge production is linked to innovation in products, processes and services. This view stems from our decision to link the knowledge worker to the notion of organisational added value leading to competitive advantage. Pyöria et al. (2005) point out that knowledge workers must also have the opportunity for “independent design of important parts of the job”. This is a useful addition to the concept as it underlines the paradigm shift from the industrial age with its pyramid of hierarchical structures and culture of loyal compliance to the knowledge economy with its focus on networking and information sharing amongst committed and empowered professionals.

As our interest lies in a generic concept of the knowledge worker, we have opted to focus on definitions that are built upon the characteristics of the knowledge worker as this opens up an area of commonality and common denominators amongst knowledge workers, which serve as useful pillars on which to base further exploration of generic competences. The identification and development of these competences should, in our view, be a core aim of our higher education curriculum. In our view, a knowledge worker is not a profession or a cluster of professions but is a characteristic of any given profession. A knowledge worker in our terms:

- is frequently engaged in the solving of new problems for which no standard answer is available or accessible;
- is highly educated and needs to continue learning in order to continue to represent added value;
- has a high degree of autonomy and responsibility in relation to the work done;
- thrives best in a learning organisation;
- is motivated by passion, drive and commitment;
- has a high tolerance of ambiguity.

## ***Competences***

The term competence presents the researcher with definition choices. Broadly speaking, we can find three types of definition in the literature: 1. Check-lists of tasks 2. Knowledge, skills and attitudes 3. Knowledge, skills, attitudes plus judgement. Oost et al. (2001) subscribe to this tripartition, labelling the first category as a behaviourist approach, the second as a generic approach and the third as a cognitive approach.

It is this first category, the category of check-lists of discrete observable tasks in which the whole is not greater than the sum of the parts (Gonczi, 1994), which has given rise to much of the criticism of the competence-based approach. The main thrust of this criticism focuses on problematic areas such as triviality, superficiality and subjectivity (Hager, Gonczi, & Athanasou, 1994). It looks at tasks in isolation and is devoid of a focus on the connections between the tasks. Thus, if an individual can carry out the discrete tasks associated with being, say, a teacher (lesson planning, establishing a rapport with pupils, maintaining discipline and so forth) then it should follow according to this approach that he or she is a competent teacher. Likewise for a car mechanic. If the individual can assemble a fuel pump, check electrical circuits, test brakes and so on, then he is deemed to be a competent mechanic.

The second category, which has been popularised by Boyatzis (1982), Schroder (1989) and others in a substantial body of management literature, sees competences as the knowledge, skills and attitudes which are needed for effective performance. Context plays little or no role. Thus we see lists emerging such as that compiled by Schroder (1989) in his attempt to capture high performance managerial competences. We see here items such as self-confidence, impact and information search.

Gonczi (1994), favours what he refers to as an integrated approach in which competences are always displayed in and pertain to a specific context. He points out that competences cannot be observed directly but can only be inferred by means of observing and assessing the performance of the individual. This holistic approach has the advantage of allowing consideration of such features of performance as intelligent judgement. This can then be identified as a third category of definition: knowledge, skills and attitudes plus judgement. It is this third category which seems to be gaining ground within the competence debate and which is of the most interest to us as educationalists.

Bartram and Roe (2005) regard the fact that a competence can be learned as important and Roe's definition (2002) reflects this: "a learned ability to adequately perform a task, duty or role". The idea of learning by doing in a work experience context, in other words, the integrated or holistic approach, is a further hallmark of their thinking. Their model uses a binary division between 'primary competences' (which are unique to a profession and hence contextually rooted) and 'enabling competences' which are common to all professionals and are the vehicle by which the 'primary competences' can be demonstrated. They include items such as quality assurance and professional strategy. Bartram and Roe join others in concluding that competences are context-specific and maintain that there are definite limits on their transferability between contexts. Transfer between contexts is always associated with a need for additional learning.

Kersh and Evans (2005) alert us to a type of difficulty with which we have been constantly confronted in the course of our own attempts to identify and define the

competences of the knowledge worker, namely the difficulty of codifying non-formal personal competences (Green, 1999). The complexity of the post-industrial knowledge society calls for these softer skills but the tools to describe and define them in a meaningful and measurable fashion are tantalisingly elusive. Of particular interest in relation to our own work on designing a self-awareness tool are the preliminary findings of Kersh and Evans that the recognition and self-recognition of what they term 'tacit skills and personal competences' could be instrumental in encouraging learners to make conscious use of these skills and competences and indeed even be a catalyst towards further conscious development of them. Further down the line, such consciousness-raising may be a step on the path to making personal competence visible to others. It would seem to us that this is precisely the path which needs further exploration and further research and is an area in which we hope to make a contribution as we further develop our self-awareness tool.

Following Gonczi (1994) and Oost et al. (2001) in their insistence on criteria, our self-awareness tool presents the learner with simple criteria by means of which an awareness of the need for certain competences can be highlighted and stimulated. The use of a criteria-based approach is important in that it helps both the learner, and indeed also the facilitator or educator, guard against generalities and leads to a thought-provoking confrontation with the relevant competences. Criteria make it possible to create a general overview of the 'enabling competences' (Bartram & Roe, 2005) whilst remaining meaningful and precise. The process of awareness-raising in itself can serve as the first step on the road to making these personal competences visible to others. This 'making visible to others' is an important aspect of today's knowledge economy with its need for innovative methods of exposing and building on existing competence, whether it be in order to facilitate the 'mass global flows of knowledge workers' (Scott, 2005) or whether it be to widen access to education, training and jobs by enabling competence acquired informally to be identified and then utilised. The professional context of the learner of necessity varies from individual to individual. Our work on the self-awareness tool is based on the assumption that the competences of the knowledge worker can be meaningfully identified and are transferable between contexts. We agree, however, with the proponents of our third category (knowledge, skills, attitudes plus judgement) that competence loses meaning once it has been divested of context. It is thus important that the learner reflects and develops awareness of his/her knowledge work competences within the context of specific professional activities. For example, the ability to conduct an information search is important to all knowledge workers. The terminology and the sources will differ, of course, according to professional context. Thus, a switch of context will, indeed, be associated with a need for additional learning (Bartram & Roe, 2005) but the mechanics and the methodology of searching and sourcing in themselves are transferable from one professional context to the other.

### ***Nine Competences of Knowledge Work***

The ability to learn is at the core of the enabling competences of the knowledge worker. However, learning is a very diverse concept. As Minsky (1988) put it: "the problem is that we use the single word 'learning' to cover too diverse a society of ideas" (p. 120). To acknowledge the richness of the concept of learning and to help operationalise it into competences of the learning knowledge worker we follow Van der Knaap (1995) and distinguish between three ways of learning: cybernetic learning, social learning, and cognitive learning.

Cybernetic learning, or system learning, is based on learning through feedback information. From the cybernetic perspective, knowledge is conceptualised as ‘interpreted information’. The enabling competences the knowledge worker needs to be able to learn through information have to do with the ability to find, assess and use information. This so called information competence can be subdivided into the ability to formulate a search question, the ability to use searching tools like search engines and library databases, and the ability to assess the credibility and value of the retrieved information and use it according to the rules of referencing.

Social learning is based on learning through communicative interaction. From the social learning perspective, knowledge is conceptualised as ‘social construction’. The enabling competences the knowledge worker needs to be able to learn through social interaction have to do with getting access to other people with valuable knowledge and insights, working with other people in teams to create and use knowledge, and engaging in the type of conversations – dialogue instead of discussion (Isaacs, 1999) – that lead to knowledge sharing and creation.

Cognitive learning is based on learning through thinking, knowing and understanding. From the cognitive learning perspective, knowledge is conceptualised as concepts, models, and thoughts. The enabling competences the knowledge worker needs to be able to learn through thinking have to do with the ability to analyse, the ability to reflect, and the ability to be creative in developing new concepts, theories and points of view.

These three perspectives on learning lead to a 3-I framework of competences of knowledge work (Tissen, Andriessen, & Lekanne Deprez, 1998): competences that enable learning through information, interaction, and intellect. For each of the three Is we have identified three enabling competences making a total of nine enabling competences (see figure 1): questioning, finding, and assessing & using (information); networking, team working, and dialoguing (interaction); and analysing, reflecting, and creating (intellect).

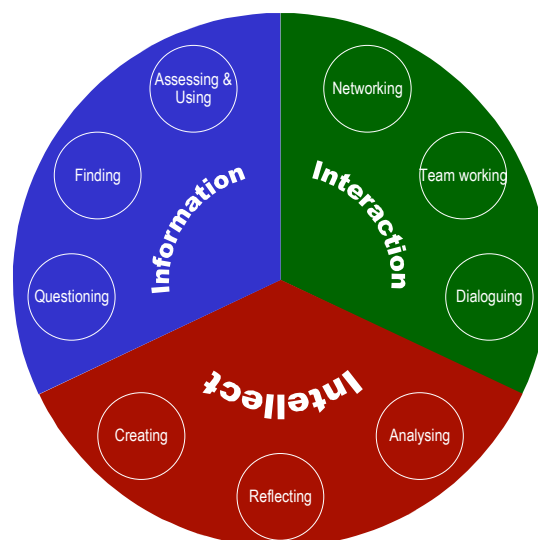


Figure 1: The Nine Enabling Competences of the Knowledge Worker

## Methodology

Our study had a dual intent. We wanted to improve the educational practice of HEIs with regard to their performance in educating knowledge workers. In addition we wanted to generate scientifically valid and generalizable knowledge about raising awareness among students about the competences of the knowledge worker. Design-based research (The Design-Based Research Collective, 2003) as a research approach fits this dual purpose as it consists of two distinctive but interwoven streams of inquiry. The objective of the *knowledge stream* is to develop generalizable knowledge that can help create desired situations (Romme, 2003), preferably in a way that contributes to theory (Collins, Joseph, & Bielaczyc, 2004; Eden & Huxham, 1996). The objective of the *practice stream* is to contribute to the practical concerns of people in problematic situations, by solving particular problems in specific circumstances. Figure 2 provides an overview of the steps of the study. Ideally, steps 3 to 10 are repeated several times adding new cases until the point of theoretical saturation has been reached (Eisenhardt, 1989). However, because of time and resource constraints this level of saturation was not achieved in this study.

As part of the knowledge stream we have developed a framework of the enabling competences of knowledge work and designed an awareness tool-kit for students. In the practice stream we tested this tool-kit with a variety of student groups thereby creating multiple cases that could be analysed and compared.

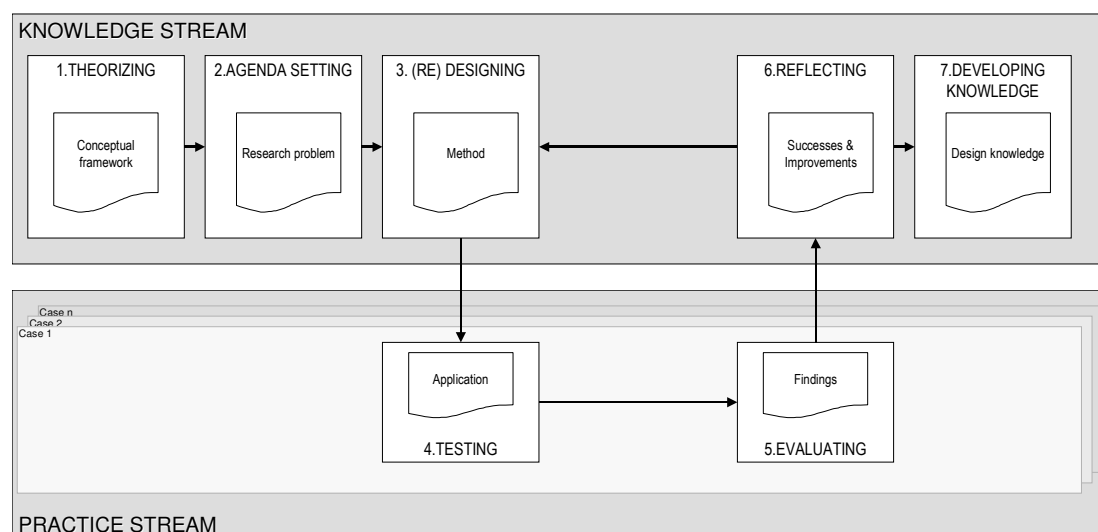


Figure 2 Methodology of the study

## Findings

In this section we present the design of the tool-kit and the results of the tests.

### Design

Awareness about knowledge work competences can be created through a facilitated group discussion in the classroom and through individual awareness raising. We designed a tool-kit that can be used in both settings. Let us start with a description of the facilitated group discussion.

*Facilitated group discussion.* To assist in a facilitated group discussion about the competence of knowledge workers we developed a Personal Priority Questionnaire

(PPQ) and a design for a one hour workshop “ Using Knowledge more Effectively”, in which the PPQ is used. The PPQ (see appendix 1, in Dutch) provides a definition for each of the nine enabling competences of knowledge work and asks the student to put them in order of importance (column 1). The most important competence receives 9 points, the second most important one 8 points, etc. Then the student is asked to mark the competence that he or she has developed most fully (column 2). This competence receives 9 points, the following competence 8 point, etcetera. In the 3 column the student calculates the difference between columns 1 and 2. This highlights those priority competences that are considered important but are less developed, which provides a starting point for the facilitated group discussion.

Our design for the facilitated group discussion is as follows. The facilitator first gives a brief introduction on the subject of knowledge work and knowledge workers. Then the students are asked think about what a penguin looks like and to draw one. A brief discussion is held about the characteristics of a penguin and it is shown that one can draw this animal in a variety of ways. The purpose of this little exercise (apart from it being a good icebreaker) is to show that there can be many different ways to look at one phenomenon. The same is true for the phenomenon of the knowledge worker. During the workshop we postpone the moment when we present our view about the nature, role and competences of the knowledge worker to enable the participants to share and discuss their own images and thoughts about the issues.

Next, the facilitator hands out the PPQ and draws figure 1 on a whiteboard. When the students have completed the questionnaire they are asked to place three small stickers on the whiteboard: the competence they have ranked highest in importance, the competence they have ranked lowest in importance, as well as the competence that scored the highest in column 3 (highest priority to develop further). Then the facilitator engages in a dialogue with the group around two questions: which competences are important for the knowledge worker and why?; and what does it mean to master this competence? As a first question, the facilitator tries to identify students with a high score and students with a low score on the various competences and tries to encourage a dialogue between the two. By this means, the facilitator can demonstrate that there is no objective way to judge which competence is most important and that a personal judgement on this matter will depend on personal preferences and learning styles. As a second question, the facilitator tries to identify experts and novices for each competence and tries to encourage a dialogue in which the experts tell the novices how they have mastered a particular competence.

Some of the nine competences of knowledge work will be practised by the students during the workshop. We have witnessed good and bad use of the ability to reflect, to network and to dialogue during the workshop. These examples can be used by the facilitator to illustrate how these competences can be used in practice. At the end of the dialogue the facilitator present the model of the nine competences and the underlying theory. At the end of the workshop the students are encouraged to reflect on the dialogue and to formulate actions they wish to take to improve their competence as a knowledge worker.

*Individual awareness raising.* For the purpose of individual awareness raising we developed a Personal Mastery Questionnaire (PMQ). The PMQ is a web-based questionnaire consisting of 72 questions that allow the student to reflect on his or her personal mastery in relation to the nine competences of knowledge work. To create the PMQ we had to operationalise the nine competences of knowledge work into

simple criteria by means of which an awareness of the need for certain competences can be highlighted and stimulated (Gonczi, 1994; Oost, Markenhof, & Lam, 2001). Each competence can be described by its associated *activities* and by its *outcome*, and both activities and outcome need to fulfil a number of criteria. For example, the competence “Questioning” can be described by the following activities: determine the information you need, determine the scope of the topic, and phrase a search question. We developed criteria for each of these activities (e.g. determining the information needed needs to be done in a way that other people can understand and with a proper use of the terms of the field). The *outcome* of these activities is a search question that needs to be precise, relevant, and formulated as a question.

This exercise of operationalising the nine competences of the knowledge worker into activities and outcomes and associated criteria, resulted in 72 statements that describe the full array of the enabling competences of the knowledge worker. In the questionnaire the student is asked to indicate to what extent he or she is able to perform the activities and to produce the outcomes on a 5-point scale from “almost never” to “almost always”. The PMQ application compares the results of the student with a cohort group and provides feedback about possible areas of improvement. This feedback includes recommendations for further reading.

### ***Testing of the tool-kit***

We have been able to carry out some limited testing of the tool-kit in its present pilot form. The observations we can make to date on its effectiveness are, we think, interesting, but are largely anecdotal as this project is very much work in progress. We have plans to research its effectiveness more exhaustively over the coming months.

The testing to date has been restricted to eight occasions and has focussed on the use of the PPQ in a facilitated discussion context with sporadic usage of the PMQ. On each of these occasions, the tool-kit was used on one or more groups. Some of the groups consisted entirely of undergraduate students, whilst others were composed of professionals (practising knowledge workers) and students and still others were made up of only professionals (practising knowledge workers). On one occasion we worked with one facilitator and on all other occasions with two. Our anecdotal evidence was obtained by interviewing the facilitators after the fact and encouraging them to reflect on the process in which they had been involved.

The following principles emerged from the interviews with the facilitators.

- It is important to ensure that all participants are actively involved in the process and to address directly any participants who are not forming a constructive part of the process.
- The atmosphere must be safe, quiet and confidential.
- Dialogue is the most effective form of communication in this setting.
- The facilitators need to be prepared to share their own strengths and weaknesses with the group. This leading by example helps to create the open atmosphere needed for social learning.
- The conscious prolongation of ambiguity about what a knowledge worker is, during the first part of the workshop, leads to a greater willingness to reflect on the nine competences model and the underlying theory at the end of the session.

- It is beneficial to demonstrate that the term knowledge worker can give rise to multiple images and associations as each of these variations on the theme can then be contextualised and made meaningful by linking them to specific examples and activities drawn from the professional context. This makes for a rich dialogue conducive to social learning.

The anecdotal evidence provided by the facilitators suggests a high degree of satisfaction on the part of the participants and a noticeable increase in awareness level in relation to the competences of the knowledge worker. An important success factor seems to be the degree to which the facilitator is able to tap into the professional context of the participants in order to contextualise the discussion. This became apparent, for example, from the experience of the facilitators that part-time students who also have a job are more able to reflect meaningfully on their own competences as a knowledge worker than the full-time students with less direct access to and experience of the professional context. The part-time students can easily draw upon actual experience in a concrete professional setting in which they practice informed participation. The facilitator can use this context as a resource by soliciting examples of critical incidents from these participants

## **Conclusions**

Our preliminary conclusions are the following. First, facilitated group discussion in combination with the PPQ seems to be an effective method of raising awareness in relation to the competences of the knowledge worker. Second, dialogue about competences only becomes meaningful to those involved when the competences are contextualized. As Hager et al. (1994) phrase it, “the notion of competence is relational. It brings together disparate things—abilities of individuals (deriving from combinations of attributes) and the tasks that need to be performed in particular situations. Thus competence is conceived of as a complex structuring of attributes needed for intelligent performance in specific situations”(p.5). Third, competences need to be operationalized through activities, outcomes and criteria in order to be a basis for meaningful reflection. Fourth, The part of our tool-kit that facilitates group discussion seems to be a useful means of guiding students from the phase of ‘unconscious incompetence’ towards ‘conscious incompetence’ and seems to provide them with a stimulus to begin acquiring the baggage needed to become ‘consciously competent’ as knowledge workers. We have noted that the PMQ as an individual tool is less likely to raise awareness in the ‘unconsciously incompetent’ participant. The group discussion and the link that the facilitator can provide between the nine competences and the concrete professional setting seem to be necessary for awareness raising. As always with working papers we cannot but than conclude that further research is needed. Research into the effectiveness and the internal validity of the PMQ and a broadening and deepening of the PPQ pilot in order to find ways of implementing this tool successfully in the HEI undergraduate curriculum.

## Appendix 1: Personal Priority Questionnaire

In column (1) allocate the numbers 1-9 with 9 being the most important and 1 the most unimportant competence. In column (2) allocate the numbers 1-9 with 9 being your most developed and 1 your least developed competence. In column (3) calculate column (1) minus column (2).

	Label	definition	Column (1)	Column (2)	Column (3)
1	<b>Questioning</b>	You are able to recognize what information you need and translate this into a query			
2	<b>Finding</b>	You are able to recognize and consult relevant sources of information and master the required IT support skills			
3	<b>Assessing &amp; using</b>	You are able to select from, assess, and use in your own work the information you find			
4	<b>Networking</b>	You are able to actively and systematically build up and maintain a personal network with individuals who could be a useful source of knowledge or with whom you can share your own knowledge			
5	<b>Team Working</b>	You are able to share knowledge and skills in a team and know how to collectively achieve a better result			
6	<b>Dialoguing</b>	You are able to hold a conversation that leads to new insights based on the joint research of various ideas and perspectives			
7	<b>Analysing</b>	You are able to compare, assess, and combine the necessary information, perspectives, and models in themselves and in relation to each other, in order to gain insight into an issue, cause, an opinion, or a solution			
8	<b>Creating</b>	You are able to think flexibly in order to combine and structure knowledge so as to produce new and surprising ideas that others value			
9	<b>Reflecting</b>	You are able to review the process from problem definition to solution in order to learn for the future			

## Appendix 2: Personal Mastery Questionnaire (in Dutch)

### *Informatie bekwaamheden*

#### *Vragen*

Stellingen	Vrijwel nooit	Meestal niet	Regelmatig	Meestal wel	Vrijwel altijd	VAR
Als ik op zoek ben naar informatie om een probleem op het gebied van mijn beroepspraktijk op te lossen dan ben ik in staat...						
• ...begrijpelijk onder woorden te brengen welke informatie nodig is	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	VR01
• ...hierbij de termen die in het betreffende vakgebied gebruikt worden op een juiste manier te hanteren	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	VR02
• ...het onderwerp af te bakenen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	VR03
• ...hoofd- en bijzaken van elkaar te scheiden	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	VR04
• ...tot de kern te komen welke informatie nodig is	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	VR05
• ...een zoekvraag te formuleren met een vraagteken er achter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	VR06
• ...een zoekvraag te formuleren die de informatiebehoefte afdekt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	VR07
• ...een zoekvraag te formuleren die nauwkeurig is geformuleerd	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	VR08

#### *Vinden*

Stellingen	Vrijwel nooit	Meestal niet	Regelmatig	Meestal wel	Vrijwel altijd	VAR
Als ik op zoek ben naar informatie om een probleem op het gebied van mijn beroepspraktijk op te lossen dan ben ik in staat...						
• ...ook andere bronnen te raadplegen dan Google	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	VI01
• ...informatiebronnen te beoordelen op hun bruikbaarheid en betrouwbaarheid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	VI02
• ...bij het maken van zoek sleutels te werken met Booleaanse operatoren, truncatie, exacte zoekzinnen en wildcards & jokers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	VI03
• ...efficiënt informatie te vinden	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	VI04
• ...een overzicht van relevante en betrouwbare informatiebronnen te maken	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	VI05
• ...een lijst met zoektermen te maken die de informatiebehoefte afdekken	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	VI06

• ...een lijst met zoektermen te maken die niet teveel en niet te weinig hits opleveren	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	VI07
• ...voor verschillende informatiebronnen de juiste zoekleutels te maken	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	VI08

### *Beoordelen en gebruiken*

Stellingen	Vrijwel nooit	Meestal niet	Regelmatig	Meestal wel	Vrijwel altijd	VAR
Als ik op zoek ben naar informatie om een probleem op het gebied van mijn beroepspraktijk op te lossen dan ben ik in staat...						
• ...informatie die vanuit verschillende invalshoeken komt te beoordelen op bruikbaarheid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BG01
• ...niet te snel tevreden zijn met de gevonden informatie	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BG02
• ...regelmatig te controleren of het resultaat de goede kant op gaat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BG03
• ...feiten van meningen te onderscheiden	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BG04
• ...de gevonden informatie te beoordelen op betrouwbaarheid, objectiviteit en actualiteit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BG05
• ...de gevonden informatie te verwerken tot een tekst	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BG06
• ...informatie te vinden die bruikbaar, betrouwbaar, objectief en actueel is	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BG07
• ...bij het gebruik van informatie in mijn teksten de juiste bronvermeldingen toe te voegen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BG08

### *Interactie bekwaamheden*

#### *Netwerken*

Stellingen	Vrijwel nooit	Meestal niet	Regelmatig	Meestal wel	Vrijwel altijd	VAR
Als ik op zoek ben naar mensen die werkzaam zijn op het gebied van mijn beroepspraktijk dan ben ik in staat...						
• ...om een netwerk van mensen op te bouwen door mensen actief te benaderen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NW01
• ...hierbij oprechte interesse in mensen te tonen, goed te luisteren en te informeren waar zij mee bezig zijn	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NW02
• ...een relatie met mensen op te bouwen door regelmatig van mij te laten horen waar ik mee bezig ben	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NW03
• ...regelmatig informatie, kennis en tips door te geven aan mijn netwerkrelaties en in hen te investeren	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NW04
• ...de relaties in mijn netwerk regelmatig te evalueren op hun toegevoegde waarde	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NW05

• ...te beoordelen welke relaties in mijn netwerk 'onderhoud' nodig hebben en zo het netwerk systematisch te verzorgen en uit te bouwen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NW06
• ...een netwerk van relevante personen op te bouwen die als bron van kennis kunnen dienen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NW07
• ...een netwerk op te bouwen waarin ik een voldoende reputatie en krediet heb opgebouwd om anderen indien nodig om een gunst te vragen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NW08

### *Teamwerken*

Stellingen Als ik in een team bezig ben om een probleem op het gebied van mijn beroepspraktijk op te lossen dan ben ik in staat...	Vrijwel nooit	Meestal niet	Regelmatig	Meestal wel	Vrijwel altijd	VAR
• ...zelf initiatief te nemen en een actieve, evenredige bijdrage te leveren	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TW01
• ...een vertrouwensrelatie op te bouwen in het team door teamleden gelijkwaardig en met respect te behandelen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TW02
• ...teamleden ruimte te geven, taken te delegeren en deze zo te verdelen dat de kwaliteiten van alle teamleden tot hun recht komen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TW03
• ...in het team het voortouw te nemen, de lijnen uit te zetten, en bij te sturen waar dat nodig is om het einddoel te bereiken	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TW04
• ...oog te houden voor de groepsdynamiek en de onderlinge relaties in het team	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TW05
• ...naast de inhoud ook het teamproces en de relaties in het team te bespreken om zo spanningen en conflicten in goede banen te leiden	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TW06
• ...het einddoel voor ogen te blijven houden en resultaatgericht daar naar toe te werken	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TW07
• ...een team te creëren dat de kennis van iedereen weet te combineren om een effectief en efficiënt resultaat neer te zetten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TW08

### *Dialogo voeren*

Stellingen Als ik een gesprek voer op het gebied van mijn beroepspraktijk dan ben ik in staat...	Vrijwel nooit	Meestal niet	Regelmatig	Meestal wel	Vrijwel altijd	VAR
• ...anderen te respecteren en een sfeer van vertrouwen te creëren	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DL01
• ... mijn eigen gedachten tijdens het luisteren naar anderen uit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DL02

te schakelen en daardoor oprecht te luisteren						
• ...mij te verdiepen in wat de anderen vinden en vragen te stellen om er achter te komen wat zij exact bedoelen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DL03
• ...mijn eigen oordeel over het onderwerp op te schorten en open te staan voor andere inzichten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DL04
• ...mijn eigen gedachten te verwoorden en het lef te hebben die uit te spreken	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DL05
• ...mijn eigen denkbeelden ter discussie te stellen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DL06
• ...voort te bouwen op de bijdragen van anderen door niet met "Ja, maar..." te beginnen maar met "Ja, en..."	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DL07
• ...een gesprek te voeren waarin nieuwe inzichten ontstaan door het respecteren en combineren van de inzichten van alle deelnemers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DL08

### ***Intellectuele bekwaamheden***

#### ***Analyseren***

Stellingen	Vrijwel nooit	Meestal niet	Regelmatig	Meestal wel	Vrijwel altijd	VAR
Als ik een situatie op het gebied van mijn beroepspraktijk analyseer dan ben ik in staat...						
• ...hoofd en bijzaken te onderscheiden	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AN01
• ...patronen en ontwikkelingen te herkennen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AN02
• ...systematisch te zoeken naar achterliggende oorzaken en problemen door de principes van systeemdenken toe te passen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AN03
• ...vanuit verschillende gezichtspunten en theorieën naar de situatie te kijken en de voor- en nadelen daarvan te onderkennen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AN04
• ...te herkennen welke invloed de vooronderstellingen van bepaalde zienswijzen en theorieën hebben op de uitkomst van de analyse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AN05
• ... zelfstandig tot een eigen oordeel te komen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AN06
• ...te bepalen welke informatie nog ontbreekt om de analyse te verbeteren en te onderbouwen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AN07
• ...een kernachtige analyse van de situatie te maken op basis waarvan actie kan worden ondernomen, en deze helder en eenvoudig op te schrijven	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AN08

### *Creatief zijn*

Stellingen	Vrijwel nooit	Meestal niet	Regelmatig	Meestal wel	Vrijwel altijd	VAR
Als ik tot nieuwe ideeën en oplossingen moet komen op het gebied van mijn beroepspraktijk ben ik in staat...						
• ...kritisch te kijken naar bestaande oplossingen en de noodzaak in te zien van nieuwe ideeën	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CR01
• ...afstand te nemen van het probleem en open te staan voor nieuwe ideeën om zodoende het creatieve proces te stimuleren	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CR02
• ...meerdere technieken te hanteren om op nieuwe ideeën te komen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CR03
• ...creativiteit te stimuleren door buiten gebaande paden te denken, op elkaar voort te bouwen, mijn oordeel uit te stellen en niet te denken aan allerlei praktische belemmeringen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CR04
• ...de pluspunten van alle ideeën met elkaar te combineren en de resultaten te beoordelen op hun nut en haalbaarheid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CR05
• ...de meest belovende ideeën in succesvolle acties om te zetten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CR06
• ...een vernieuwende oplossing te bedenken die bruikbaar, doeltreffend en inspirerend is	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CR07
• ...door mijn creativiteit een project of proces dat vast is gelopen weer op gang te helpen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CR08

### *Reflecteren*

Stellingen	Vrijwel nooit	Meestal niet	Regelmatig	Meestal wel	Vrijwel altijd	VAR
Als ik reflecteer op mijn resultaten op het gebied van mijn beroepspraktijk ben ik in staat...						
• ...te bepalen of de beoogde doelen zijn gehaald	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RE01
• ...te benoemen waarom de doelen niet zijn gehaald	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RE02
• ...eventuele fouten te corrigeren en verbeteringen door te voeren	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RE03
• ...kritisch te analyseren of het probleem wel goed is ingeschat en de oorspronkelijk gestelde doelen ter discussie te stellen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RE04
• ...kritisch te analyseren of de door mij gehanteerde theorieën en concepten bruikbaar en valide waren	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RE05
• ...alternatieve zienswijzen, theorieën of concepten toe te passen om betere oplossingen te vinden	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RE06
• ...per situatie de juiste theorieën en concepten uit mijn beroepspraktijk toe te passen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RE07

<ul style="list-style-type: none"> <li>• ...nieuwe inzichten te ontwikkelen waarmee vooruitgang in mijn beroepspraktijk kan worden geboekt</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RE08
---	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	------

## References

- Bartram, D. & Roe, R. A. (2005). Definition and assessment of Competences in the Context of the European Diploma in Psychology. *European Psychologist, 10*, 93-102.
- Boyatzis, R. (1982). *The Competent Manager*. New York: Wiley.
- Collins, A., Joseph, D., & Bielaczyc, K. (2004). Design research: Theoretical and methodological issues. *The Journal of the Learning Sciences, 13*, 15-42.
- Eden, C. & Huxham, C. (1996). Action research for management research. *British Journal of Management, 7*, 75-86.
- Elkjaer, B. (2000). Learning and getting to know: the case of knowledge workers. *Human Resource Development International, 3*, 343-360.
- Gonczi, A. (1994). Competency Based Assessment in the Professions in Australia. *Assessment in Education, 1*, 27-44.
- Green, F. (1999). Training the Workers. In P. Gregg & J. Wandsworth (Eds.), *The State of Working Britain* (pp. 127-146). Manchester: Manchester University Press.
- Hager, P., Gonczi, A., & Athanasou, J. (1994). General Issues about Assessment of competence. *Assessment and Evaluation in Higher Education, 19*, 3-16.
- Harrison, R. & Kessels, J. (2004). *Human Resource Development in a Knowledge Economy*. New York: Palgrave Macmillan.
- Isaacs, W. (1999). *Dialogue and the art of thinking together*. New York: Currency Doubleday.
- Kersh, N. & Evans, K. (2005). Self-evaluation of Tacit skills and Competences of Adult Learners. *European Education, 37*, 87-98.
- Kessels, J. W. M. (1996). *Het corporate curriculum (inaugural lecture, University of Leiden)*.
- Minsky, M. (1988). *The Society of Mind*. New York: Simon & Schuster.
- Oost, H. A., Markenhof, A. T., & Lam, J. I. (2001). *De Ontwikkeling van wetenschappelijke probleemstellingen in een telematische omgeving (paper: onderwijsresearchdagen UvA)*.
- Pyöriä, P., Melin, H., & Blom, R. (2005). *Knowledge Workers in the Information Society*. Tampere: Tampere University Press.
- Roe, R. A. (2002). What makes a competent psychologist? *European Psychologist, 7*, 192-202.

- Romme, A. G. (2003). Making a difference: organization as design. *Organization Science: A Journal of the Institute of Management Sciences*, 14, 558-573.
- Schroder, H. M. (1989). *Managerial Competence: the key to excellence*. Iowa: Kendall/ Hunt.
- Scott, P. (2005). The global dimension: internationalising higher education. In H. De Wit & B. Kehm (Eds.), *Internationalisation in higher education* (pp. 8-22). Amsterdam: EAIR/EAIE.
- The Design-Based Research Collective (2003). Design-based research: An emerging paradigm for educational inquiry. *Educational Researcher*, 32, 5-8.
- Tissen, R., Andriessen, D. G., & Lekanne Deprez, F. (1998). *Value-based knowledge management*. Amsterdam: Addison Wesley Longman.
- Van der Knaap, P. (1995). Leren van beleidsevaluatie; Correctie, reflectie of argumentatie (*Learning from policy evaluation; Correction, reflection, or argumentation*). *Beleidsanalyse*, 11-25.