A focus on educational IT specialists

An exploration in the national and international higher education sector with recommendations for educational practice

Acceleration plan
Educational innovation with ICT

Facilitating professional development of lecturers

A focus on educational IT specialists

An exploration in the national and international higher education sector with recommendations for educational practice

Acceleration Plan Educational Innovation with IT
Professional development zone www.versnellingsplan.nl
www.versnellingsplan.nl

Acceleration plan
Educational innovation
with ICT

Authors
Judith Vennix, *Rotterdam University of Applied Sciences*
Peter Dekker, *Amsterdam University of Applied Sciences*
Elise Hebbink, *Van Hall Larenstein University of Applied Sciences*
Annette Peet, *SURF*
Marlies ter Beek, *Acceleration Plan Educational Innovation with IT*
Dorien Hopster-den Otter, *Acceleration Plan Educational Innovation with IT*
Marieke van Geel, *University of Twente*

November 2021

Contents

Introduction

Educational innovation that uses information technology (IT) has been a priority in higher education for many years1-3. Students have high expectations of their degree programmes and of the role that technology should play in these4, while it is essential that what they are taught reflects technological developments in the job market. Technology can also make learning more flexible, for example through the provision of online learning.

To make optimum use of the possibilities provided by IT in education, lecturers need a new set of knowledge and skills. For many institutions, however, the creation of effective professional development programmes that focus on educational innovation with IT presents a considerable challenge5,6. For this reason, people are increasingly needed who can help lecturers learn more about educational innovation with IT. In this exploration, we call these people 'educational IT specialists'.

The role of educational IT specialist is very different in different higher education institutions. There is also a lack of information on what the job should entail, for example the tasks and responsibilities or the required competences7. A greater understanding of the job, its tasks and responsibilities and the required competences of educational IT specialists in higher education is desirable for a number of reasons. First, recognition of what these professionals do is necessary, both within and between institutions. Secondly, the position and role of these professionals in relation to their colleagues must be clarified, as must their tasks and responsibilities and required competences. Finally, professional development opportunities should be put in place and facilitated for these professionals.

This exploration identifies the similarities and differences between job titles, tasks and responsibilities, competences (knowledge and skills) and professional development opportunities for educational IT specialists currently working in higher education. To do this, an exploration was conducted in higher education institutions from the Netherlands and abroad, to obtain a comprehensive overview of the current situation. The results of this exploration will be used to develop a growth and reflection tool that educational IT specialists can use to evaluate their own situation and plan the next steps to take in their own professional development.

"Online teaching (required due to the coronavirus pandemic) would in some cases simply not have been possible without the help of educational IT specialists. They helped implement a new system and helped the lecturers make optimum use of the system."
– anonymous respondent

Acceleration Plan Educational Innovation with IT

The exploration has been carried out within the framework of the Acceleration Plan Educational Innovation with IT. The Acceleration Plan is a collaboration between Universities of the Netherlands, The Netherlands Association of Universities of Applied Sciences and SURF, who are working to realise the opportunities provided by the digitalisation of higher education. A total of 39 universities are taking part in the programme.

The four-year programme runs from 2019 to 2022 and is based on three ambitions:

- Improve the connection to the labour market;
- stimulating the flexibility of education;
- smarter and better learning through technology.

The Acceleration Plan has seven zones and three working parties (teams of representatives from higher education), who together are working to realise these ambitions. The Facilitating Professional Development for Lecturers zone of the Acceleration Plan (hereinafter: Professional Development zone) aims to develop strategies that can be implemented by universities for the effective professional development of their staff in the area of educational innovation with IT. Based on the professionalisation strategies developed by the zone, universities can put in place an improvement trajectory to accelerate educational innovation with IT within their institutions.

What is the structure of this exploration?

This exploration considers four elements: the job titles, tasks and responsibilities, competences and professional development opportunities of educational IT specialists. A brief description is given of each of these in this section.

Various job titles are used in the Dutch higher education sector to refer to educational IT specialists. These include *onderwijskundigen* (education specialists), i (information) or ICTO

(information, communication, technology and education) coaches, learning designers and *onderwijstechnologen* (learning technologists), and so on. Terms used in the international literature include non-academic professionals, educational support staff[4,8,9], blended professionals[8,10] and third space professionals11. These people often have an education science or technical background, but are not lecturers or IT specialists. They therefore operate at the interface between academia and support, or the 'third space', in the higher education institution11,12. For this reason, the first question asked in this exploration is: Which job titles are used to refer to educational IT specialists?

As well as a wide variety of job titles, educational IT specialists also often have a wide variety of tasks and responsibilities. These tasks and responsibilities can change, depending on the needs of the lecturers or students. As an illustration, an i-coach can fulfil six different roles in the senior secondary vocational education (MBO) sector: that of trainer, coach, change agent, education specialist, advisor or 'technovator', who inspires and innovates in technology[13,14]. The role that the i-coach is required to adopt depends on the particular situation. In the international literature, tasks vary from technical support and support for individual lecturers to advising management in digital technology. This leads to the second question in this exploration: What are the tasks of educational IT specialists?

The variety of job titles and tasks results in great diversity in the required competences of educational IT specialists. This is because the different job titles fall under different job profiles in the Dutch University Job Ranking System (UFO)[15] and the HAY and FUWA-HBO systems[16]. In these systems, each job profile requires certain competences. An international exploration from 2003 concluded, based on expert consultation, that no fewer than 13 different roles can be identified for employees involved in distance education in higher education. Each of these roles requires different *competences*, which are determined by the job title[17]. The third question of this exploration is therefore: Which competences are required of educational IT specialists?

Finally, it is important to consider the professional development of educational IT specialists. In contrast to the clear-cut Basic Teaching Qualification (BKO) or Basic Qualification of Teaching Competence (BDB) for lecturers in the Netherlands, the professional development pathway for other education specialists is less clear. The international literature describes a similar situation. In the United Kingdom, people may have taken a variety of career paths to become an educational IT specialist. They can work independently to gain further accreditation, such as Certified Membership of the Association of Learning Technologists (CMALT) of the Association for Learning Technology (ALT). However, many reach an invisible ceiling, making it difficult to continue to progress[18]. Moreover, professional development is frequently not required or encouraged by universities for this group of professionals[8].

The fourth question of this exploration is therefore: Which opportunities do educational IT specialists have for their *professional development*?

Because of the four factors named above, the identity of educational IT specialists is in many cases ambiguous[4,10].To go some way to addressing this ambiguity, we make a number of recommendations based on the results of this exploration. The insights obtained from this exploration will also be used to develop a growth and reflection tool that educational IT specialists can use to evaluate their own situation and plan the next steps to take in their professional development.

How was this exploration carried out?

This exploration considers existing practices in higher education, both in the Netherlands and abroad. Several instruments are used, including interviews, questionnaires and an analysis of job profiles and job adverts.
An overview of these instruments is provided in Table 1.

Table 1 Overview of instruments, target groups and questions

		Questions			
Instrumentes	**Target group**	**1. Job titles**	**2. Tasks and responsibilities**	**3. Competences**	**4. Professional development**
Interviews	The Netherlands	✓	✓	✓	✓
Job profiles and job adverts	The Netherlands	✓	✓	✓	
Questionnaire	International	✓	✓	✓	✓
Job profiles and job adverts	International	✓	✓	✓	
Social media	The Netherlands	✓	✓		

The results of the interviews, job profiles, job adverts and questionnaires are described in the following sections. The social media results are intended to illustrate these results and are presented in Appendices B, C and D. Please note that this is an exploration of the data obtained, and is for this reason not intended to be comprehensive and exhaustive.

Job titles

Educational IT specialists in higher education have many different job titles; and we found 56 in the Netherlands alone in this exploration. The job titles used in higher education in the Netherlands and abroad are given in alphabetical order in Table 2, illustrating the wide variety in titles.

In the Netherlands, each higher education institution uses its own job titles. Differences can also be found within a single institution, especially in educational institutions in which staff are appointed by different faculties or departments. In this case, faculties appoint their own educational IT specialists, resulting in a variety of job titles and tasks and responsibilities (see the example of the University of Amsterdam). There is also a discrepancy between the job titles used in the official job profiles and the job titles used in practice. For example, a job advert for an ICTO coach in a higher education institution explicitly noted that the professional would formally be appointed as a 'policy officer'. Finally, the job of educational IT specialist is sometimes performed within another formal position (see the example of Avans University of Applied Sciences).

A wide variety of job titles is also used in other countries. The titles education or educational designer, learning designer and education technologist are common in many different countries, and the abbreviation EdTech is often used for education technologist. Dutch titles are mainly used in Dutch-speaking areas of Belgium.

Example:
University of Amsterdam
At the University of Amsterdam, two job adverts were placed at the same time by two different faculties. The job titles (in this case ICTO officer and IT support officer) were different, but the tasks were almost identical.

Example:
Avans University of Applied Sciences
At Avans University of Applied Sciences, the role of ICTO coach may be filled by a lecturer, a senior policy officer, a senior operations officer, a training instructor or a helpdesk employee.

Table 2 Job titles for educational IT specialists

HE in the Netherlands	International HE
Adviseur blended learning	Academic Developer
Adviseur blended onderwijs	Adviser Learning Technologies
Adviseur digitale didactiek	Curriculum Designer
Adviseur hybride onderwijs	Digital advisor
Adviseur ICT en onderwijs	Digital Education Advisor
Adviseur leren met ICT	Digital Education Support Analyst
AV medewerker regie	Digital learning advisor
Beleidsadviseur ICTO-coach	Digital learning designer
Beleidsmedewerker Onderwijs en ICT	Director of digital learning
Blended coach	Domain coordinator (educational innovation)
Blended learning developer	Education advisor
Blended learning specialist	Educational advisor and facilitator
Coach	Education Specialist
Consultant ICT	Education Support Specialist
Consultant onderwijs	Educational consultant
Coördinator digitaal toetsen	Education/Educational designer
Digitaal didacticus	Educational developer
Digitaal onderwijscoach	Educational innovation designer
Digital innovation partner	Educational Support Officer
Digital transformation officer	Education/Educational technologist
DLO innovatiepartner	E-learning advisor
DLO-coach	Faculty Liaison (often qualified with a particular area of focus such as teaching technology)
e consultants	ICT-coach
e-coach	Instructional designer
e-learning specialist	Learning and teaching consultant
i-coach	Learning designer
ICT ondersteuner	Learning developer
ICT ontwikkelaar	Learning Environment Specialist
ICT-onderwijsadviseur	Learning Experience Designer
ICTO-coach	Learning Innovation Support Officer
ICTO-contactpersoon	Learning Platform Support Technology Enhanced
Learning Specialist	Learning strategist
ICTO-medewerker	Learning strategist
ICTO-specialist	Learning system administrator
Instructietechnoloog	Learning system advisor
Instructional designer	Learning technologist
Learning and innovation consultant	Learning Technology Support Officer
Learning and innovation manager	Lecturer in academic practice
Learning designer	Onderwijsondersteuner TE-learning*
Learning developer	Onderwijstechnoloog*
Learning developer blended learning	Online Learning Advisor
Learning experience designer	Professional development consultant
Medewerker ICT in het onderwijs	Project officer
Medewerker onderwijsontwikkeling	Senior Learning designer
Ondersteuner ICT in onderwijs	Stafmedewerker onderwijsontwikkeling*
Onderwijsadviseur	Stafmedewerker TE-learning*
Onderwijsadviseur blended learning	Staff member domains education and innovation
Onderwijsassistent ict&o	Technology Enhanced Learning (TEL) Advisor
Onderwijskundig ontwerper	
Onderwijskundig ontwikkelaar	
Onderwijsontwerper	
Onderwijsontwikkelaar en adviseur	
Onderwijstechnoloog	
Ontwikkelaar hybride onderwijs	
Opleider en adviseur	
Projectmanager	
Specialist leren met ICT	

NB. Many English terms are also used in the Netherlands.
*These Dutch job titles are used in Dutch-speaking areas of Belgium.
DLO = *digitale leeromgeving* (digital learning environment); TE = technology-enhanced.

Tasks and responsibilities

There is no standard set of tasks and responsibilities for educational IT specialists. The tasks are diverse and cover every level in an educational institution. In Table 3, the tasks are grouped under the following three levels: operational, tactical and strategic.

- **Operational level**: tasks relating to the implementation of IT in teaching practice.
- **Tactical level**: tasks relating to educational design/redesign and development at the degree programme/curriculum/department level.
- **Strategic level**: tasks relating to the development of an education vision, policy development and advisory input for decision making at the management level.

Table 3 Tasks and responsibilities of educational IT specialists at the operational, tactical and strategic levels

Level	HE in the Netherlands	International HE
Operational	Advise on pedagogical use of IT	Advice on pedagogical use of IT
	Demand-based, individual support for implementation of technology in education	Demand-based, individual support for implementation of technology in education
	Functional management	Systems, functional, administrative management
	Inspire and inform lecturers for implementation of technology	Inspire and inform lecturers for implementation of technology
	Analyse, select and implement learning technology	Analyse, select and implement learning technology
	Provide professional development activities (training courses, online tools) on technology and pedagogy	Provide professional development activities (training courses, online tools) on technology and pedagogy
	Technical support	Technical support
Tactical	Identify needs and questions in the organisation	Align digital infrastructure with user needs
	Create momentum	
	Design/redesign degree programmes using technology	Design/redesign educational resources using technology
	Design/redesign curricula using technology	Design/redesign educational resources using technology
	Initiate improvements to educational processes	Test and evaluate the quality of innovative technology
Strategic	Ensure quality of innovative technology	Test and evaluate the quality of innovative technology
	Inform management of new developments and advise on future plans	Inform management of new developments and advise on future plans
	Identify trends	Support development of educational vision
		Collaborate with other institutions to develop joint programmes

Some of the job titles in Table 2 entail tasks at the *operational level*, for example learning system administrators, who mainly provide technical support. Other job titles entail tasks at the more tactical level, for example education designers. There are also job titles that are more concerned with the strategic level, for example policy advisors.

However, educational IT specialists frequently operate at several organisational levels (see the examples given here). The tasks and responsibilities of a job also vary between institutions: a learning designer at one university does not necessarily have the same tasks and responsibilities as a learning designer at another university.

Example:
Rotterdam University of Applied Sciences
ICTO coaches at Rotterdam University of Applied Sciences inspire and coach lecturers (operational/tactical level) but also communicate with HR and have input into policy development and university-wide activities (strategic level).

Competences

Educational IT specialists have many different educational backgrounds. A university education is nearly always a requirement, plus an education science or technical background. A teaching qualification or teaching experience may also sometimes be required. Job adverts and job profiles also name other required or desirable competences. An overview of the various competences is given in Table 4, where a distinction is made between desired and required knowledge, skills and characteristics. For the sake of simplicity, similar knowledge, skills and characteristics are combined.

Example:
Amsterdam University of Applied Sciences
An ICTO support specialist at the Amsterdam University of Applied Sciences switches between theory and practice, both technical/instrumental and pedagogical. The ICTO support specialist is not only an education designer, but also a change agent, consultant, technovator and trainer/coach.

Example:
Avans University of Applied Sciences
ICTO coaches support lecturers in the implementation of IT in their teaching, but also advise management and contribute to university-wide projects.

Example:
Van Hall Larenstein University of Applied Sciences
The tasks of the e-coaches at Van Hall Larenstein are highly dynamic, as they take place at various organisational levels. The roles (change agent, coach, consultant, networker and inspirer) also vary for each e-coach. The reason for this is the small-scale character of the university.

Table 4 Competences for educational IT specialists

	HE in the Netherlands	International HE
Knowledge	Knowledge of education and pedagogy	Knowledge of education and pedagogy
	Knowledge of technology	Knowledge of technology
		Knowledge of pedagogy
	Knowledge of teaching practice	Knowledge of and experience in the higher education context
Skills	IT skills (use of tools, programmes, etc.)	IT skills (use of tools, programmes, etc.)
	Advisory skills	Advisory skills
	Coaching and training skills	Ability to disseminate knowledge
	Ability to develop knowledge	Ability to develop knowledge
	Ability to design and develop products	Multimedia design and development skills
	Ability to design and develop professional development activities	Ability to design and develop professional development activities
	Ability to design and develop curricula	Ability to design and develop curricula
	Ability to switch readily between organisational levels Aility to connect	Ability to manage opposing interests
	Communication and interpersonal skills	Communication and interpersonal skills
	Ability to identify new developments	Ability to recognise trends (incl. EdTech trends)
	Ability to analyse needs	Ability to identify and analyse needs and align response with these
	Educational policy skills	
	Coordination skills	
	Planning and organisational skills	Planning and organisational skills
	Project management skills	Project management skills

	Ability to monitor quality	
	Ability to translate vision into practical advice	
	Ability to motivate, inspire, enthuse and persuade	Ability to motivate, inspire, enthuse and persuade
		Problem-solving skills
Characteristics	Accurate	Eye for detail
	Active member of learning community	
	Affinity with IT	Passion for IT in education
	Analytical capacity	Analytical capacity
	Policy-focused	
	Approachable, accessible	
	Creative	Creative
	Conceptual capacity	
	Empathic, tactful	
	Flexible	Flexible
	Hands-on mentality	
	Innovative	Innovative
	Customer-oriented	Customer-oriented
	Quality-oriented	Quality-oriented
	Inquisitive/eager to learn	
	Sensitive to/aware of surroundings	
	Politically aware	
	Proactive	Proactive
	Result-oriented	Result-oriented
	Service-oriented	
	Good discussion partner	
	Ability to cope with stress	
	Team player	Team player
	Independent	Independent
		Honest
	Visible, available, recognisable	

A wide range of knowledge, skills and characteristics is presented in Table 4. For example, an educational IT specialist must be able to plan and organise, but also to enthuse and persuade. Knowledge of education and technology is mentioned in almost every source, and communication and interpersonal skills – including oral, written and presentation skills – are also important. Educational IT specialists also work together with lots of other professionals at different levels in the organisation. After all, universities are large organisations in which teaching takes place in separate faculties or departments. IT, on the other hand, is often organised centrally. Educational IT specialists must therefore know how to find their way in this complex organisational structure. They need to be able to work with individual lecturers and key users, but also with other people such as privacy officers and managers.

We see a similar picture in the international context. As one of the respondents said: “There is a considerable diversity in qualifications and competences of the people doing these jobs. There is also a lot of flexibility in the recruitment process, which means that we also recruit people who do not precisely match existing job profiles.”

The required knowledge, skills and characteristics can be used to structure professional development opportunities, which are discussed in the following section.

Professional development opportunities

National context

There does not seem to be a clear overview of professional development opportunities for educational IT specialists in the Netherlands. There is also, as far as we are aware, no official national accreditation system to reward or recognise professional development (for example with the award of 'EduBadges'). In many of the institutions explored in this exploration, the professional development of educational IT specialists takes place through a combination of formal and informal activities.

Formal professional development often reflects the tasks and competences of educational IT specialists. For example, workshops and courses are provided by the institution, and professional learning communities (PLGs) are organised. Professionals can also follow external courses or take part in external meetings (see the example of Fontys University of Applied Sciences).

In addition to formal professional development activities, attention is also paid to informal learning from other professionals, for example by sharing experiences in themed and network meetings (network learning), organising peer reviews, or attending conferences and workshops. In some cases, universities specify how much time is to be reserved for professional development (see the example of TU Delft).

Professional development can take place individually or for larger groups (e.g. the whole community, see the example from Amsterdam University of Applied Sciences).

Example:
Fontys University of Applied Sciences
Training courses in coaching skills and change management are organised for DLO coaches, as these are important skills for these professionals.

Example:
Erasmus University Rotterdam
Learning & innovation consultants work closely together and knowledge sharing is actively supported through the organisation of frequent network meetings and workshops and visits to conferences.

Example:
Delft University of Technology
At Delft University of Technology, 20% of the work time of learning developers is reserved for knowledge sharing and personal development.

Example:
Amsterdam University of Applied Sciences
Faculty DLO innovation partners and ICTO specialists organise joint themed meetings to share their knowledge on topics such as hybrid education.

Several institutions have websites or online knowledge portals containing information for employees and/or the general public.Although these focus primarily on the educational practice of lecturers, the information is also relevant to educational IT specialists (see the example of the Open University). Educational IT specialists use such resources to make sure that they stay up-to-date with new developments, and to refer lecturers to.

In the Netherlands SURF offers a wealth of knowledge, case studies and services in education and IT, for any interested professionals. To do this, SURF works closely with educational IT specialists in higher education. There are various communities and special interest groups (SIGs), for example on blended learning and educational logistics, but also on open education and green IT and sustainability.
Professionals who are involved in technology innovation in the education and research sectors are welcome to join these communities, where they can take part in webinars, request information on the use of tools, or read relevant articles.

The Dutch higher education expertise network (EHON) also provides an annual training course for professionals who coach lecturers; this is however a fairly broad course and does not specifically cover educational innovation with IT. EHON also has a working group for university educational centres (WUO). This working group consists of representatives from Dutch universities who exchange knowledge and experiences relating to the professional development of lecturers and university teaching. The aim of the working group is to improve the quality of education by learning from each another,comparing practices and

Example:
Open University
The Open University has developed an online database with tips & tricks, free webinars and various modules on digital pedagogy. The database is available to anyone who is interested, and information may also be requested individually.

Example:
Avans University of Applied Sciences
The ICTO coaches form a community in which they learn from and with each other. They join temporary working groups in which they aim to address issues raised by the schools. A Digital Pedagogy course has also been established.

Example:
United States
EDUCAUSE provides LX (Learning Experience) Pathways in which educational IT specialists can follow self-paced modules ('edventures') that reflect their needs and competences. A distinction is made between beginner and advanced levels, and participants receive microcredentials on completion of a track.

EDUCAUSE also has a Learning Technology Leaders Institute. Here, educational IT specialists can gain leadership experience

actively contributing to new developments. Topics that are addressed include programmes such as Start to Teach,

the Basic Teaching Qualification (BKO), the Senior Teaching Qualification (SKO), educational leadership, and the role of the professional development of lecturers in educational innovation and careers in education.

International context

Ook internationaal wordt de professionalisering The professional development of educational IT specialists is also organised both formally and informally in other countries, as well as internally and externally. Internal professional development opportunities include seminars, workshops, personal supervision by colleagues and the availability of a toolkit containing videos and articles. External professional development opportunities include conferences, training courses, membership of an external community of practice and visits to colleagues at other institutions. International organisations also offer professional development pathways (see the examples of EDUCAUSE in the United States, ASCILITE in Australia and Jisc and ALT in the United Kingdom).

and the necessary pedagogical knowledge. The programme focuses for example on learning success, communication, data-driven solutions, digital leadership and transformation, and technological innovation.

Example: Australia
ASCILITE offers webinars and seminars in SIGs and mentor programmes for the professional development and training of educational IT specialists. It also focuses on the development of a network of professionals and the exchange of knowledge and experiences within this network.

Example:
United Kingdom
Jisc offers training courses and learning resources, such as the Digital leaders programme (focusing on management) and the Digital pedagogy toolkit (focusing on lecturers and education designers). The United Kingdom also has the *Association for Learning Technology* (ALT), in which educational IT specialists can work independently to gain further accreditation such as *Certified Membership of the Association of Learning Technologists* (CMALT).

Conclusion

This exploration provides insights into the job titles, tasks and responsibilities, competences and professional development opportunities of educational IT specialists in the Netherlands and abroad. The conclusion is that there is no standard definition of the role of educational IT specialist. Each higher education institution, in the Netherlands and abroad, interprets the job in its own way. Many different job titles are used for educational IT specialists, who carry out a wide range of tasks, at operational, tactical and strategic levels in the organisation. Moreover, the tasks and responsibilities are different for different job titles, and the same job title can entail different tasks and responsibilities. A wide range of competences is also required, as well as many kinds of knowledge, skills and characteristics. Furthermore, professional development opportunities are largely informal and focus on the exchange of knowledge and network building.

Recommendations for educational practice

This exploration encourages higher education institutions to take a critical look at their organisational structure, and in particular the job profiles of the various professionals working in educational innovation with IT. It also provides pointers for a sector-wide discussion of the position of educational IT specialists, for example by reviewing the current job profiles (e.g. UFO, HAY). This may improve recognition of the position of educational IT specialists and ensure greater clarity concerning their position and role in higher education. This exploration also identifies five roles of educational IT specialists, which could be used to ensure a more standard interpretation of the job in the various institutions. The roles can also help to identify the different qualities of members of a team.

Based on the findings of this exploration, we have drawn up a number of recommendations for educational practice:

- Identify the different job titles in the higher education institution for educational IT specialists and identify the tasks and responsibilities and competences linked to each of these.
- Further to this, identify the tasks and responsibilities that are not yet officially associated with a particular job. What is needed, and who is currently filling these gaps? Are these people satisfied with this solution?
- Ensure recognition throughout the institution by drawing up guidelines on the job titles to be used and the associated operational levels (e.g. centralised or decentralised).
- Clearly link the job titles to task and responsibilities and competences, for example in clear role or job profiles, perhaps based on the five roles identified in this exploration.
- Put in place formal and informal professional development opportunities and identify how professional development is to be facilitated, recognised and rewarded.
- Discuss the role of educational IT specialists with other higher education institutions, and share information and new developments.
- Create a national network for knowledge sharing and the professional development of educational IT specialists. Professional development will benefit from collaboration, which also ensures that institutions do not waste time reinventing the wheel.

"Clear definitions and roles are needed. Everyone needs to know what they mean and what conditions need to be met."
– anonymous respondent

Development of a growth and reflection tool

Educational IT specialists and the institutions they work in would benefit from a tool that helps them in their work, improves the position of these professionals in the organisation, and improves the efficiency and effectiveness of their professional development. As a first step in this, we would like to develop a growth and reflection tool that professionals can use to assess and develop their personal competences. For this, a clear overview is required, preferably in the form of a practical and recognisable classification of tasks and roles.

A profile-based classification

Based on the results obtained in this exploration, we initially created two main categories of job profiles: that of 'coach' and 'advisor'. This distinction is based mainly on international educational practice. These two main categories combine two underlying axes:

- that of functional level: from operational to strategic, whereby the coach works at the operational/tactical level and the advisor at the tactical/strategic level.
- that of tool-specific to pedagogical approach. The coach knows a lot about tools and is able to decide on the tools that are needed to meet a perceived need, while the advisor recommends certain learning activities and blended learning concepts based on their pedagogical knowledge.

This means that coaches work closely together with lecturers, are actively involved in training and coaching colleagues in the use of existing and new tools, and that they inspire colleagues by presenting them with new insights and tools. Coaches are acquainted with the main pedagogical concepts that play a role in educational development and design. Advisors, on the other hand, support teams of lecturers in the educational design process, advise management, are active in network development, and can make policy proposals. Advisors preferably have a background in education science.

In June 2021, detailed profile descriptions of a coach and an advisor were presented to participants in an online conference. In summary, the feedback obtained from the participants was that coaches/advisors need to operate at all three levels – operational, tactical and strategic – to do their work properly, and that the distinction made between coach and advisor does not reflect this. Participants did however recognise that there are different roles in the work of the educational IT specialist, although they cannot be matched one by one to each profile: they are part, to varying extents, of both profiles. Participants were also aware that nobody is equally competent in each of these roles. In other words, a profile-based classification does not reflect the diversity of the work of the educational IT specialist, and does not therefore benefit the educational IT specialist. A classification based on roles would therefore be more helpful.

Proposed role descriptions

Based on the feedback obtained during the conference and on the level at which the educational IT specialist works and their focus, a classification was made based on roles. These roles can be used to apportion tasks and competences to a team of educational IT specialists. Depending on the situation, an educational IT specialist should be able to take on one or more of these roles. Each role requires the professional to be able to work independently and to be sensitive to the needs of the organisation.

The five roles are based on the data obtained in this exploration, and specifically on the tasks and responsibilities and the required characteristics, experience, knowledge and skills, as detailed in Table 4. Clustering was used to identify roles that are distinctive and exclusive and that occur to the same extent in the data. However, competences such as knowledge of tools, IT/EdTech and education/pedagogy were not taken into account, as these are considered basic areas of knowledge for the educational IT specialist. In other words, such knowledge is required for every role. The resulting clusters were given names.

The identified roles are: change agent, coach, advisor, networker and inspirer.a Note that these descriptions are not intended to be strict definitions: educational institutions are free to define existing and new roles based on these descriptions. Finally, the roles were presented to representatives of 18 higher education institutions in the Professional Development zone of the Acceleration Plan, who said that they recognised themselves in the five roles.

The five roles of the educational IT specialist

1. The **change agent** is able to initiate and support an effective change process. The change agent is keenly aware of the needs of the different target groups, and takes an evidence-informed approach to achieve good project results.

2. The **coach** enthuses, supports and trains lecturers in the pedagogical use of IT in education. The coach also contributes to the educational design processes of lecturers. Coaches establish a link between daily education practice and possible IT applications, with a focus on the functionality of IT systems (technology-based educational content and pedagogy).

3. The **advisor** provides management and the organisation with advice, and communicates this effectively. The advisor is aware of the main issues and questions in the organisation and how to respond to these. Advisors establish a link between the institution's vision or policy and possible IT innovations, with a focus on digital pedagogy (pedagogy-based educational content and technology), the educational vision (of the institution) and educational practice (of the lecturers). Advisors also act as an intermediary or sparring partner to ensure that changes in the educational practice of lecturers are aligned with the institution's policy.

4. The **networker** not only brings together people in an approachable and accessible manner, but also brings together ideas and examples, and ensures that these collaborations, ideas and practices are viable and adopted in the organisation. Networkers therefore create the context within which innovation can take place, and are aware of the broader picture.

5. The **inspirer** monitors the potential of new pedagogical and technological developments, communicates the possibilities that these offer for education, and therefore inspires other professionals to take action.

NB: these roles are similar to the six roles of the i-coach defined by saMBO-ICT. However, the five roles developed here are specific to higher education, since they are based on university job profiles and job adverts. Moreover, the five roles focus not just on i-coaches, but on educational IT specialists in the broadest sense of the term.

References

1. Kirschner, P. A., Hendriks, M., Paas, F., Wopereis, I., & Cordewener, B. (2004). *Determinants for failure and success of innovation projects: The road to sustainable educational innovation.* Chicago, IL: Association for Educational Communications and Technology. Retreived from files.eric.ed.gov/fulltext/ED485042.pdf

2. Rienties, B., Brouwer, N., Bohle Carbonell, K., Townsend, D., Rozendal, A-P., van der Loo, J. … & Lygo-Baker, S. (2013). Online training of TPACK skills of higher education scholars: A cross-institutional impact study. *European Journal of Teacher Education*, *36*(4), 480-495. doi.org/10.1080/02619768.2013.801073

3. Shen, C., & Ho, J. (2020). Technology-enhanced learning in higher education: A bibliometric analysis with latent semantic approach. *Computers in Human Behavior*, *104*¸106177. doi.org/10.1016/j.chb.2019.106177

4. Graham, C. (2012). Transforming spaces and identities: The contributions of professional staff to learning spaces in higher education. *Journal of Higher Education Policy and Management*, *34*(4), 437-452. doi.org/10.1080/1360080X.2012.696326

5. Kirkup, G., & Kirkwood, A. (2005). Information and communications technologies (ICT) in higher education teaching – A tale of gradualism rather than revolution. *Learning, Media and Technology, 30*(2), 185-199. doi.org/10.1080/17439880500093810

6. Schildkamp, K., Wopereis, I., Kat-de Jong, M., Peet, A., & Hoetjes, IJ. (2020). Building blocks of instructor professional development for innovative ICT use during a pandemic. *Journal of Professional Capital and Community*, *5*(3-4), 281-293. doi.org/10.1108/JPCC-06-2020-0034

7. Meijer, C. (2020). *Centers for Teaching and Learning op Nederlandse universiteiten: Wat gebeurt er?* (Masterthesis). Amsterdam: Vrije Universiteit.

8. Beckmann, E. A. (2019). Professional staff, professional recognition: Bringing learner support staff into the fellows of university educators. In C. Bossu & N. Brown (Eds.), *Professional and Support Staff in Higher Education* (pp. 1-16). Singapore: Springer. doi.org/10.1007/978-981-10-1607-3_16-3

9. Ryttberg, M., & Geschwind, L. (2017). Professional support staff at higher education institutions in Sweden: Roles and success factors for the job. *Tertiary Education and Management, 23*(4), 334-346. doi.org/10.1080/13583883.2017.1322631

10. Whitchurch, C. (2009). The rise of the *blended professional* in higher education: A comparison between the United Kingdom, Australia and the United States. *Higher Education, 58*(3), 407-418. doi.org/10.1007/s10734-009-9202-4

11. Whitchurch, C. (2008). Shifting identities and blurring boundaries: The emergence of *third space* professionals in UK higher education. *Higher Education Quarterly, 62*(4), 377-396. doi.org/10.1111/j.1468-2273.2008.00387.x

12. Whitchurch, C. (2012). *Reconstructing identities in higher education: The rise of third space professionals*. London: Routledge. doi.org/10.4324/9780203098301

13. Kappert, J., Schouwenburg, F., Bakker, L., Karssenberg, W., & Bijleveld, M. (2018). *Bruggen bouwen: De succesfactoren voor i-coaches in het mbo.* Zoetermeer: Kennisnet en saMBO-ICT. Retreived from www.sambo-ict.nl/wp-content/uploads/2018/06/iCoaches-Bruggen-bouwen-ipdf.pdf

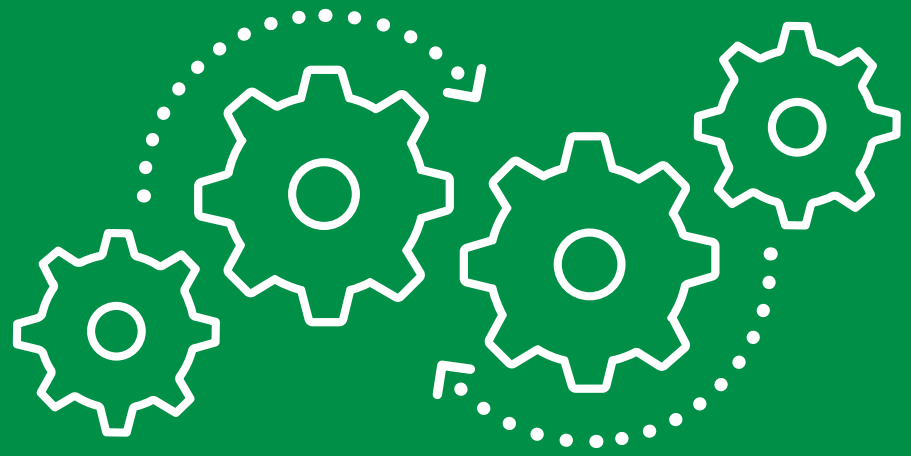
14. Bakker, L. (2020). *De i-coach als schakel tussen onderwijs en ict- professionalisering*. Retreived from www.kennisnet.nl/publicaties/de-i-coach-als-schakel-tussen-onderwijs-en-ict-professionalisering/

15. VSNU (2020). UFO functiefamilies versie 9, 1 februari 2020. Retreived from www.vsnu.nl/files/documenten/CAO/2020/functieniveau-matrix%20fnm%20universiteiten%20versie%209%20%201%20febrl%202020.pdf

16. Aanvraagformulier voorbeeldfuncties in het hbo. Retreived from www.aob.nl/formulier/aanvraagformulier-voorbeeldfuncties-in-het-hbo/

17. Williams, P. E. (2003). Roles and competencies for distance education programs in higher education institutions. *American Journal of Distance Education, 17*(1), 45-57. doi.org/10.1207/S15389286AJDE1701_4

18. Nanfeldt, K. (2019). "What makes a learning technologist?' – Part 2 of 4: Career paths. Retreived from altc.alt.ac.uk/blog/2019/11/what-makes-a-learning-technologist-part-2-of-4-career-paths/



Appendix A: Sources and methodology

Here, we provide background information on the sources used and the research method applied in this exploration. The data represents a first inventory of the current status of educational IT specialists in higher education institutions, both in the Netherlands and abroad. Note that this exploration does not endeavour to be comprehensive, and does not therefore claim to follow a systematic approach.

National context

Job profiles and job adverts

The Professional Development zone began this exploration by reviewing the job profiles and job adverts of the participating universities (n=37). Job adverts placed on the job web-sites academictransfer.com and werkenbijhogesholen.nl were also examined. The data was obtained between March 2020 and April 2021. Job profiles and job adverts were also obtained from two institutions that do not participate in the zone. A total of six job profiles and 15 job adverts were analysed from ten universities of applied sciences (HBO), and five job profiles and 11 job adverts from eight universities (WO).

The job profiles and job adverts provide information on the job titles, the tasks and responsibilities and the required competences. The job titles are listed in alphabetical order in Table 1. The tasks named in the job profiles and job adverts were analysed. This resulted in the identification of several tasks and responsibilities, including: ‘hands-on support’, ‘training and coaching’, ‘implementation of new technology’, ‘inspire’, ‘educational development’, ‘identify needs’, ‘collaborate’, ‘identify trends’, ‘create momentum’, ‘initiate improvements’, ‘evidence-informed work’, ‘ensure quality’ and ‘advise management’. These tasks were then grouped at the operational, tactical and strategic levels.

The job profiles and job adverts often contained different terms with similar meanings. For example, ‘help desk responsibilities and support of lecturers’ can be interpreted as ‘hands-on support’, and a ‘knowledge broker’ can be interpreted as an ‘interaction facilitator’. On the other hand, terms were sometimes used that turned out to have different meanings in different contexts. For example, the term ‘communicative’ may mean ‘approachable’ in one job advert, whiles in another advert it may mean that the professional is able to explain their reasoning. Based on the words used and their context, a fairly extensive list of properties/characteristics was compiled. It is however possible that the word ‘approachable’ or ‘interaction facilitator’ is not named literally in a certain job profile or job advert, but that it is identified as such in our analysis. At the same time, we have

attempted to be as specific as possible. For example, a conscious distinction is made between the categories 'identify needs' and 'identify trends', or between 'create momentum' and 'initiate improvements'. As far as 'identify' is concerned, 'identify needs' focuses on the own institution, whereas 'identify trends' focuses more on national and international developments (and responding to these). These may be related, but they are different processes. This also applies to creating momentum or initiating improvements; the first focuses more on raising awareness, while the second focuses more on the steps to take once this has been achieved.

Interviews

In-depth interviews (n=7) were held with coordinators and in-line managers of ICTO coaches and learning technology programmes in vocational education (MBO), universities of applied sciences (HBO) and university (WO) institutions (n=1, 3 and 3, respectively). The following interview script was used:

Situation: The interview is to be held with a number of employees who were instrumental in implementing the role of ICTO coach in the organisation. The objective is to identify what, according to them, is the importance of an ICTO coach, how the ICTO coach interacts with other parts of the organisation (management, lecturers, educational advisors), what the roles of the ICTO coach are in the organisation and which skills are required, and what this implies in terms of professional development opportunities for the ICTO coach.

Questions fall into the following categories:

1. The importance of ICTO coaches in education
   a. How did the role of ICTO coach come about?
   b. What are the tasks and responsibilities?
   c. What are the roles in the organisation?
   d. What are the relationships with other parts of the organisation?

2. Role in education and IT
   a. What skills are required?
   b. What experience is required?

3. Knowledge development
   a. Which areas of knowledge need to be maintained?
   b. Is training formal/informal/on the job/organised/unorganised?
   c. Is it possible to distinguish between a basic, intermediate and senior level?
   d. Do you distinguish between an operational, tactical and strategic level?
   e. How do you ensure that people have the time for continued professional development?

The interviews were then analysed based on these questions. If different job titles were named in the interview (e.g. in response to question 1a), these were added to Table 1. Questions 1b, 1c and 2d mostly provided information on the tasks. Answers to questions 2a and 2b were analysed with regards to the required competences. Finally, questions 3a, 3b and 3e were used to obtain information about the professional development of educational IT specialists.

Social media

Questions were placed on social media concerning job titles, the roles of educational IT specialists and their benefit to educational institutions. First, a Twitter poll was set up with the question: 'What is the best job title for higher education professionals who work at the interface of pedagogy and IT?' People could vote for one of four options: ICTO coach, blended learning specialist, instructional designer or *onderwijstechnoloog* (learning technologist). A total of 58 votes were returned, plus some more detailed responses. Secondly, a discussion was started on LinkedIn with the question: 'At the interface of pedagogy and IT: where should the emphasis lie?' Seven people responded to this. Thirdly, a video was placed on social media with the question: 'How do ICTO coaches or ICTO advisors benefit higher education?' People could fill in a response form on the Acceleration Plan website; which 22 respondents did.

The responses obtained through the various social media channels were analysed. The results are presented in Appendices B, C and D, as it is not possible to identify the respondents using this data. These results are representative of the job titles and tasks and responsibilities in the Dutch higher education sector.

Professional development opportunities

The professional development of educational IT specialists in higher education is usually organised by individual institutions. We obtained information from the websites of the participating institutions in the Professional Development zone. Additional information on professional development opportunities for several educational IT specialists was obtained from the interviews.

International context

Online questionnaire

The international exploration began in November 2020, with information obtained from contacts of Acceleration Plan zone members. Following this, a questionnaire was sent to

almost every university and higher education college in Australia, New Zealand, the United Kingdom and Belgium (n=137). The top 30 institutions in the *Times Higher Education* international ranking were also included; mainly universities in the United States, China and Canada. We contacted employees at several international higher education institutions who work in the fields of technology-enhanced learning, educational IT support or online learning design. These employees were asked to complete our online questionnaire: the Inventory of Educational Support Staff Competences (IESSC).

This questionnaire includes the following questions:

- Which job titles are used in your institution?
- What is the position of people in these jobs within your institution?
- What kind of competence profiles are linked to these job titles? We would like to know more about e.g. tasks, responsibilities, knowledge, skills, characteristics.
- How are formal professional development activities or possibilities organised for people in these jobs?

The questionnaire was also placed on social media (Twitter and LinkedIn), so that we also received responses from other countries. We received responses from 31 different educational institutions in Belgium, Australia, the United Kingdom, Ireland, Turkey, South Africa and the United States.

Job profiles and job adverts

In addition to completing the questionnaire (IESSC), we also asked the respondents to provide us with job profiles and/or recent job adverts. The documents received from eight different institutions were analysed in the same way as the Dutch job profiles and job adverts.

Professional development opportunities

The last question on the online questionnaire (IESSC) provided information on how professional development is organised for educational IT specialists in the different institutions. This information was supplemented with a review of a number of international organisations for educational IT specialists, such as EDUCAUSE in America, ASCILITE in Australia, Jisc in the United Kingdom and the international Future Learn and Skills Journey.

Educational institutions

Information was obtained in the form of interviews, job profiles, job adverts and responses to the international questionnaire from employees in the following institutions.
The institutions are listed in alphabetical order.

National context

Avans University of Applied Sciences (HBO)
Driestar Christian University/Radiant Hogescholen (HBO) Erasmus University Rotterdam (WO)
Fontys University of Applied Sciences (HBO)
HAN University of Applied Sciences (HBO) Amsterdam University of Applied Sciences (HBO) University of Applied Sciences Leiden (HBO)
Rotterdam University of Applied Sciences (HBO)
Van Hall Larenstein University of Applied Sciences (HBO)
Open University (WO)
Police Academy (HBO)
Radboud University Nijmegen (WO)
Saxion University of Applied Sciences (HBO)
Delft University of Technology (WO)
University of Amsterdam (WO)
University of Twente (WO)
Utrecht University (WO)
VU Amsterdam (WO)

International context

Australian Catholic University, Australia
Australian National University, Australia
Deakin University, Australia
Griffith University, Australia
La Trobe University, Australia
Melbourne Polytechnic, Australia
Monash University, Australia
Murdoch University, Australia
Queensland University of Technology, Australia
The University of Adelaide, Australia
The University of Melbourne, Australia
The University of Newcastle, Australia
The University of Sydney, Australia
University of New England, Australia
University of Wollongong, Australia

Karel de Grote University of Applied Sciences and Arts, Belgium
University of Antwerp, Belgium
University of Toronto, Canada
National University of Ireland, Galway, Ireland
Victoria University of Wellington, New Zealand
A state funded university, Turkey
Cardiff University, United Kingdom
Leeds Beckett University, United Kingdom
University College London, United Kingdom
University of East Anglia, United Kingdom
University of Exeter, United Kingdom
University of the West of England Bristol, United Kingdom
Arizona State University, United States
Michigan State University, United States
The Ohio State University, United States
Stellenbosch University, South Africa

Appendix B: Twitter poll

'What is the best job title for higher education professionals who work at the interface of pedagogy and IT?'
Twitter poll, 3–10 November 2020

A Twitter poll was created to obtain additional responses from people working in the Dutch higher education sector. The 58 responses illustrate the diversity in job titles for educational IT specialists in higher education.

1. ICTO-coach (18x)
2. Blended learning specialist (14x)
3. Instructional designer (14x)
4. *Onderwijstechnoloog* (learning technologist) (12x)

Other job titles that were named included: *onderwijsadviseur* (education advisor), learning experience designer, *ontwikkelaar* (developer), *adviseur leren met* ICT (digital learning advisor), *adviseur digitale didactiek* (digital pedagogy advisor) and *specialist leren met ICT* (digital learning specialist).

In contrast to the results of the poll, a number of people said that they try to avoid the term 'ICTO coach', as they believe that the job title does not reflect the supporting role of the job. They therefore recommended using the term 'advisor'. Other respondents said that they found the 'e' (in 'e-learning specialist' or 'e-advisor') a little out-of-date.

Appendix C: Response form

How does the work of the coach/advisor benefit lecturers and students?
Response form on the Acceleration Plan website, spring 2021
An open question about the benefit of ICTO coaches to the educational institution was placed on the Acceleration Plan website, to obtain additional responses from people working in the sector. How does the work of the coach/advisor benefit lecturers and students? We obtained 22 responses to this question, which are summarised below.

Benefit to lecturers.
Well-informed lecturers are better teachers. ICTO coaches can contribute to better online and blended learning by translating the questions that lecturers have into practical applications. This has been of benefit: "For many, they are indispensable in the sudden transition from physical to online education," said one respondent. With the help of ICTO coaches, lecturers can make better use of tools, provide better support for students, and organise their activities more efficiently and effectively. ICTO coaches can enrich existing knowledge about technology by providing training or refresher courses and by sharing good practices. ICTO coaches form a link between the various university departments and the lecturers, but also between the lecturers and IT services. Nevertheless, there was also some criticism. For example, one respondent said that the work of the ICTO coach is, in practice, to: "help people use Teams and answer other questions, but not to reflect on how to use IT to enable good teaching practice."

Benefit to students.
ICTO coaches not only work for the benefit of lecturers but also, of course, for the benefit of students and their learning process. ICTO coaches help ensure better and more standardised teaching, which improves the learning experience for students. Another point often mentioned is that ICTO coaches form a link between students and lecturers; they help lecturers to understand how students see education (with IT) and what is important to students. One respondent said that, as well as employing ICTO coaches, it should be possible to involve students in the implementation of IT in education.

NB: The term ICTO coach or ICTO advisor was used in this question. However, it seems that this term is not entirely satisfactory as, as one respondent said: "I find the term ICTO coach too vague and a bit too 'light' for the tasks of these education and IT professionals in higher education. It is not used at our university."

Appendix D: LinkedIn discussion

At the interface of pedagogy and IT: where should the emphasis lie?
LinkedIn discussion, 2–16 November 2020
VAdditional responses were sought by placing a question on LinkedIn via the Acceleration Plan website concerning the role of ICTO advisors and coaches (see image).

The seven detailed responses illustrate the diversity of tasks and competences among educational IT specialists in higher education. The following roles were named: technological innovator, business theorist, change agent, project leader and education specialist, while experience in the education sector is also considered to be an advantage. Social skills are also very important: the ability to build relationships and recognise the needs of lecturers is essential in these functions. One respondent noted that the job actually entails two roles that cannot be carried out by a single person: that of project leader/innovator (who works on innovation projects), and that of the coach, or blended learning coach, who supports lecturers.

The Acceleration Plan for Educational Innovation with ICT is a four-year programme focused on bringing initiatives, knowledge, and experiences for digitalisation together. The programme is an initiative of SURF, the Netherlands Association of Universities of Applied Sciences, and the Association of Universities, and is organised in eight acceleration zones. In the zone Facilitating professional development for lecturers, 16 institutions are working on improving the professional development of lecturers in Dutch higher education.

For more information and our publications, visit
www.versnellingsplan.nl