

Redesigning Professional Development on Digital Transformation Using Andragogy as a Theoretical Lens

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Abstract: Regarding the ongoing digitalisation in the knowledge society, professional development seems more crucial than ever. The need for upskilling and reskilling is described as continuous lifelong learning, which must be combined and synchronised with the life of full-time working learners. Content, pedagogical models and instructional design in university courses are often created for students in Bachelor's and Master's programs instead of tailored for adults working full-time. This study describes and discusses andragogy as a potential knowledge base for redesigning professional development courses on digital transformation. Evaluations from two instances of a course for professionals on digital transformation showed that the course participants overall are satisfied with the course. However, only a few course participants take the exam to get credits. Therefore, the research question that guided this study was, "What redesign options for increased pass rates and learner satisfaction in professional development for adult learners can be identified using andragogy as a theoretical lens?" The course is on distance and contains four modules with synchronous and asynchronous learning activities, resulting in five European Credit Transfer System (ECTS). The empirical material consisted of course participants' check-in presentation before the course started, mid-term evaluation, final evaluations, and a learning diary containing 58 entries. The data was deductively analysed using the theory of andragogy as an analytical lens. The findings imply that instructors should put effort into how different parts of the course are connected, supporting learners' need to know. Further, to enhance the course participants' prior experience as a resource for learning by adding learning activities, they exchange experiences and examples with each other, adding to their learning process and networking. The pedagogic parts of understanding the theoretical course material could be split into pieces through exercises where the participants apply conceptual models and concepts to real-situation problems. The learning diary could help the participants align the new knowledge with their prior knowledge with a focus on professional roles and work situations. The identified redesign options create opportunities to increase pedagogical parts like readiness, orientation, and motivation to learn according to the current higher education system.

Keywords: Andragogy, Lifelong learning, Course redesign, Technology enhanced learning, Professional development

1. Introduction

In the contemporary knowledge society, the ongoing investment in upskilling and reskilling is an essential and continuous process across the human lifespan. Technology-enhanced learning has enabled new forms of professional development involving virtual learning environments and online conferencing tools for a more functional and flexible study design (Williams, 2020). At the same time, this requires higher education to rethink pedagogy and instructional design for an education tailored to working professionals (Mozelius, 2022). It is crucial to build on a pedagogical model that involves the needs of adult learners and opens up ideas such as experiential learning and work-integrated learning (Haddara and Skanes, 2007). Lifelong learning has a long history that can be traced back to Plato's 'The Republic' with his discussions on continuous learning to improve leadership (Williamson, 2008). This is still relevant today, but this is an elitist perspective that does not address the needs of the 21st-century knowledge society. In the 17th century, the philosopher and educationist Johann Amos Comenius outlined the broader and more democratic concept of lifelong learning for all. Both perspectives were combined by the French Enlightenment philosopher Nicolas de Condorcet with the still-modern idea of enabling lifelong learning for professional and personal development (Jaldemark, 2020). Lifelong learning in the 21st century should better be designed to stimulate self-determined learning and learner agency in a continuous and lifelong process (Blaschke, 2018; 2019).

In the discussions on education for adult working professionals, Knowles, Holton and Swanson (2015) have highlighted that Andragogy should be opposed to Pedagogy. On the other hand, Andragogy should rather be seen as a complementary extension to Pedagogy. This assumption could also be valid for Heutagogy in what has

been called a pedagogy–andragogy–heutagogy continuum (Blaschke, 2019; Moore, 2020). The individual learning journey could shift from traditional education to more self-directed and self-determined learning in this continuum. Course design in lifelong professional development should be related to this continuum, with variations depending on the group of participants and the assessment rules. In more traditionally graded university programmes, giving learners the same ownership over the assessment as in work-integrated professional development is impossible. In the context of higher education, this study belongs in the middle of the continuum, focusing on Andragogy. The research question that guided this study was: "What redesign options for increased pass rates and learner satisfaction in professional development for adult learners can be identified using andragogy as a theoretical lens?"

2. Theoretical framework

The concept of 'andragogy' has a long history and can be traced back to the Greek 'aner' and 'ageing', which would translate to 'leading men' or 'leading adults' (Loeng, 2018). Although the practice of adult learning and adult education has been around for a long time, the works of Malcolm Knowles have been highly influential on the concept and theory of andragogy (Loeng, 2018). Knowles's theory of andragogy has been widely used in prior research, for example, in studies on teacher professional development (Humble and Mozelius, 2021), the impact of COVID-19 on higher education (Sharaievskia et al, 2022), and for reviewing the state- of-the-art literature on mobile learning (m-Learning) for adults (Sabri et al, 2022). In the theory of andragogy, Knowles, Holton, and Swanson (2015; 1998) present six core principles of adult learning, which are summarised in the listing below:

1. Learners need to know
 1. Why?
 2. What?
 3. How?
2. Self-concept of the learner
 1. Autonomous
 2. Self-directed
3. Prior experience of the learner
 1. Resource
 2. Mental models
4. Readiness to learn
 1. Life-related
 2. Developmental task
5. Orientation to learning
 1. Problem centred
 2. Contextual
6. Motivation to learn
 1. Intrinsic value
 2. Personal Payoff

The first principle highlights the importance of engaging adult learners in collaborative planning to share the control over learning and to make the learning more effective (Knowles, Holton and Swanson, 2015). Addressing how, what and why in the collaborative planning of learning is considered substantial (Knowles, Holton and Swanson, 2015). The second principle addresses learning mechanics and techniques and that adult learners are capable of taking control of these (Knowles, Holton and Swanson, 2015). Although there has been some discussion about whether this principle is a characteristic of adult learners and if it applies to all adult learners,

it is still emphasised that adult learning should be self-directed and autonomous (Knowles, Holton and Swanson, 2015).

The third principle has been highlighted as especially important for professional development (Knowles, Holton and Swanson, 2015). Prior research has also highlighted the importance of new learning and difficulties since they can challenge pre-existing mental models (Argyris, 1982; Knowles, Holton and Swanson, 2015; Schon, 1987). Instead, the recommendation is that adult learners' experiences be used as learning resources, which can also support them to more efficiently identify, test and change their own mental models (Knowles, Holton and Swanson, 2015). The fourth principle notes that changes in a life situation that creates a need for new knowledge often serve as readiness for learning among many adults (Knowles, Holton and Swanson, 2015). Therefore, teachers that understand adult learners' life situations can often be more effective (Knowles, Holton and Swanson, 2015).

Experiential learning, as defined by Kolb (1984), as "the process whereby knowledge is created through the transformation of experience", is considered a rooted practice in adult learning and highlighted in the fifth principle (Knowles, Holton and Swanson, 2015). They further state that learning should be contextual and problem-centred to suit adult learners' needs and preferences. The last core principle addresses adult learners' motivation to learn, where Knowles, Holton and Swanson (2015) state that internal payoffs and life-related problem-solving tend to motivate adults more. However, this should not lead to the misconception that payoffs of external nature (such as a raise in salary) are wasted on adult learners, but rather that intrinsic and personal satisfaction tend to be more motivating for adults (Knowles, Holton and Swanson, 2015).

Lastly, it should be noted that the core principles of adult learning in andragogy are located within 'goals and purposes for learning' and 'individual and situational differences' according to Knowles, Holton and Swanson (2015). Goals and purposes for adult learning are individual, institutional or societal and enclose and shape all other parts of the theory and the learning experience. In the next layer, enclosed by the goals and purposes, individual and situational differences comprise the middle part of andragogy and enclose the six core principles (Knowles, Holton and Swanson, 2015). These are described as variables and filters that shape the andragogy practice. These variables are categorised based on the type of difference they address subject-matter, situational, or individual learner.

In related research, Humble and Mozelius (2021) expand on Knowles, Holton and Swanson (2015) research to identify factors for learner satisfaction and pass rates in professional development courses. The research identifies eight crucial factors that could influence learners' satisfaction and increase course pass rates: 1) Exchange of experience, 2) Practical work, 3) Help and support, 4) Alignment to prior knowledge, 5) Required time and commitment, 6) Level of difficulty, 7) Clarity and structure, and 8) Participant expectation (Humble and Mozelius, 2021). In continuing professional development (CPD), Bennetts, Elliston and Maconachie (2012) highlight the importance of critical and active learners' involvement in ongoing professional development. Learners should take part in identifying their needs for development and training and formulating strategies and objectives that support them in addressing challenges in their professional practices (Bennetts, Elliston and Maconachie, 2012).

3. Research context

The existing distance course in this study is one course, among others, given by a research centre at a university in Sweden. The course 'Digitalisation and Digital Transformation in Organisations' has been designed and developed as part of a professional development initiative to offer flexible advanced-level courses for professionals. The requirements to apply for the course are 90 ECTS in Social or Natural Sciences and two years of work experience in digitalisation. The course runs for 15 weeks and is divided into four modules: Introduction to Digitalisation and Digital Transformation, Business Development through Digitalisation, Data-driven Organisations and Data Use, and Leadership and Organisations in the Age of Digital Transformation, resulting in five ECTS. The course aims to give the participant increased knowledge and understanding of central concepts, theories and models of digitalisation and digital transformation, which provides tools to lead and work systematically with digitalisation for improved efficiency and innovation in organisations.

The modules combine synchronous and asynchronous learning activities with three-hour weekly seminars, resulting in three or four seminars per module. Each module has a responsible teacher who has chosen research articles for the module and provided links to the articles on the learning management system (LMS). Besides that, the teachers record lectures and upload their film sequences on the LMS as they wish. The first seminar includes an introduction to the content of the course, a presentation of the teachers, and an introduction to the

LMS. Each module has at least one seminar with external professionals. Before the first seminar, the course participants are supposed to fill in a check-in template where they inform about their expectations, experiences of digitalisation, work roles, and industry. There are two internal course evaluations during the course, one formal course evaluation from the universities' side after the course, and the course participants are supposed to submit a learning diary to get their course ECTS.

So far, the course has been offered twice, and the overall impression is that the participants are satisfied. However, only a few take the examination to get the course credits. From an academic point of view, this is problematic since the pass rate is a quality measure in the higher education system in Sweden. In addition, allocating funds to the institution partly depends on the course participants passing the course. The course participants work with digitalisation in private or public organisations and occupy roles such as project leaders, business developers, managers, IT strategists and digitalisation coordinators. They have different backgrounds and experiences from digitalisation why their course expectations vary, bringing challenges concerning the course design and learning activities. Through this study, the idea is to investigate how an adult learning perspective on course design can help to address these problems and challenges.

4. Method

This study employs a design science research (DSR) approach. DSR is an appropriate methodological approach when the aim is to contribute with an artefact that helps to solve a practical problem (Johannesson and Perjons, 2021). In this study, the artefact is a master-level course for professionals designed and developed to address competence needs in digitalisation and digital transformation on a societal level and in the long run, contribute to lifelong learning. From evaluations of two course instances, problems and challenges regarding pass rate and course design surfaced, triggering a current state analysis to identify options for course redesign. Therefore, in this paper, the third step of the DSR process (Peffer et al, 2007) is focused on: options for redesigning the artefact (the course). Identifying options for redesign is based on the empirical material and the theory of andragogy (Knowles, Holton and Swanson, 2015). The identified options for redesign will constitute input to course (re-)design and development, implemented and evaluated during fall 2023.

4.1 Data collection and analysis

The empirical material for the study consists of five items: the course participants' check-in presentation, two internal course evaluations (mid-term and after course completion), one formal course evaluation from the university's side (after course completion), and a learning diary. The items have been designed with regard to the course curriculum, course objectives and course examination. Altogether the empirical material contains 58 entries, summarized in Table 1.

Table 1: Empirical material used in the study

Data items	Number of entries
Course participants' check-in	19
Internal mid-term evaluation	11
Internal evaluation (after course completion)	10
University-level evaluation (after course completion)	7
Learning diary	11

The empirical data has been deductively analysed using the theory of andragogy (Knowles, Holton and Swanson, 2015) as the theoretical lens. More specifically, the six core principles of adult learning guided the analysis and identification of course design and redesign options. Three authors have worked closely with the data, and two conducted the deductive data analysis. This was done iteratively and with recurrent discussions with the third author familiar with the data.

4.2 Ethical considerations

Course participants have been informed about the study and voluntarily consented that their material can be used. The study has been approved by an ethical advisor at Karlstad University (HS 2023/690).

5. Results

The results are categorised according to Knowles, Holton and Swanson (2015)'s previously presented principles for andragogy.

5.1 Learner's need to know

The course participants expressed their gratitude for the formality and administration related to the instance on the LMS. The information in the course instance is clearly announced on an overall level and for each of the four-course modules. The result is that it is easy to find information without too much effort. Some respondents want more rigid material to decrease the burden of returning to university studies. For example, support in how to get access to and read research articles. The information can be either in written words or in a recorded film. However, some prefer film since it can be listened to during a walk or other activities.

While the course participants saw the overall administration as satisfactory, they emphasised that they wanted all modules accessible at the course start. The reason was to schedule work assignments and prepare for course appointments. The total workload made the readings hard to squeeze into their schedule, and some participants expressed that it was difficult to find time for reflection. Another aspect related to the research articles was that the teachers handled them differently, affecting the understanding and how to use them in the learning diary. Individual assignments that included the application of theoretical concepts and models in their own business were viewed as introduced too late and, therefore, too harsh to handle in time.

Synthesising the empirical material, the professionals were satisfied with the information on what to learn and wanted us to continue in the same manner but increase the how and why already during the course introduction and then continuously.

5.2 Self-concept of the learner

Here, the empirical material focused on the design of the course and that the course material should be easily accessible via the LMS. The division of the course into four modules, the length of the course and the weekly meetings were especially appreciated. The course participants valued the provision of both recorded and written course material and that they could take part in it irrespective of time and place. Some participants expressed as missing one or two seminars did not affect the learning process, mainly because the seminars were recorded. The course participants appreciated the buffet of knowledge-acquiring resources and learning activities, but how to use them was, to some degree, handed over to the course participants.

To summarise, the empirical data shows that the course participants are satisfied with the course content, course length, and weekly meetings. Further, they want to spend their time on their learning process. Providing easily accessible course material in written and recorded form enables them to focus their learning process irrespective of time and place.

5.3 Prior experience of the learner

The learner's prior experience varies; some course participants are new to the area, and some are taking this course as one among others. The latter group of participants builds on previous knowledge and creates cutting-edge competence. Some have studied digitalisation previously, but more of the technical aspects. Therefore, they wish to add more social aspects, such as the organisational. Some describe themselves as "feeling rusty academically", expressed by the difficulty of reading scientific articles.

A central theme in the course participants' expectations of the course is that they want to learn from each other by sharing experiences and examples of digitalisation. The weekly seminars are highly appreciated as they constitute a forum for discussions and reflections on theoretical concepts and models based on their experiences and real-world examples. Since the course participants have different backgrounds and are occupied in different organisations, different perspectives on digitalisation are brought forward, which has greatly benefited the course participants.

For professional development, the prior experience of the learner is central. The empirical data also shows that professionals learn from each other, addressing the importance of designing learning activities where the learners can share and reflect on each other's experiences and lessons learned, thereby challenging their mental models.

5.4 Readiness to learn

The empirical material shows that all professionals are ready to learn more about digitalisation and look forward to developing their understanding. They emphasise that their professional role and curiosity are the driving forces, and for some professionals learning about digitalisation adds more business opportunities to entrepreneurs. Some professionals put forward communication skills for digitalisation to break a culture of needing to understand how to approach digital transformation in their organisation. They put hope and expectations in the course to solve existing problems and challenges.

The empirical material shows different incentives for why the course participants want to learn more about digitalisation. One is about increasing the theoretical and practical understanding of digitalisation, both from an individual and organisational perspective and another is about getting tools to advance the digital maturity in their organisations.

5.5 Orientation to learning

The course participants highlight the benefits of having a mixture of theoretical lectures, practical cases, and assignments to understand more about digitalisation and digital transformation. These activities add to their willingness to discuss and deepen their knowledge. The individual practical assignments between weekly seminars aim for the course participants to delve into the course literature and apply models in their work environment. This has been an appreciated task for some of the course participants, especially since it relates to their current work situation and helps them understand the models' benefits and how they can be used in practice. Further, it supports the writing of the learning diary.

The empirical material shows that the course participants want to iterate between theoretical and practical learning activities to promote their learning process. Theoretical learning activities should preferably be complemented with practical examples and cases and anchored in the course participants' life situations or practised through an exercise or assignment.

5.6 Motivation to learn

The motivation to learn is expressed as wanting to help their organisation and sometimes detailing it to specific work roles. They want the organisation to stay up-to-date and add to the pride and competitiveness of their organisation. They can benefit individually through personal development and organisationally in their work situation. Some professionals work as entrepreneurs and see opportunities to add more business possibilities. Thus, the motivation to learn is from an individual and organisational perspective.

6. Design and redesign options

The intention is to increase the course participants' satisfaction with the course and the number of participants graduating. Therefore, based on the findings and previous research, we present our perspectives on the results and ideas on design and redesign options.

The importance of the *learner's need to know* is based on the what, how, and why (Knowles, Holton and Swanson, 2015). Mainly discussed is the "what" and that easy accessibility is essential. The "what" is addressed in the course participants' feedback on the importance of course information, instructions, and access to learning material. We intend to increase the what by showing the learning objectives recurrently during the course and the how by establishing a format for article seminars used in all modules. Lemow (2015) describes that a similar format provides security and recognition, and clarity and structure are one of the factors for learner satisfaction found in the study by Humble and Mozelius (2021). Activities to keep are the mix of films, lectures, seminars, and assignments. We can add the why by reflecting on how the different parts are connected and how they help to reach the learning objectives. This supports the course participants in their learning process (cf. Humble and Mozelius, 2021).

The *self-concept of the learner* explains that the learning should be autonomous and self-directed by the adult learner (Knowles, Holton and Swanson, 2015). In the context of professional development and lifelong learning, the application to the course can be understood as a self-directed choice by the professionals based on their need to extend their knowledge in digitalisation. To provide a flexible and autonomous learning process, independent of time and place, we could provide easily accessible course material in written and recorded form. A theme in the empirical data is learning from each other by sharing experiences from different settings and

backgrounds. The exchange of experience for professional development has also been recognized in a previous study on the adult's learning process (Humble and Mozelius, 2021) and relate to the principle prior experience of the learner in the theory of andragogy (Knowles, Holton and Swanson, 2015). Therefore, we could clarify that the course participants should use their experiences to learn from each other and add learning activities such as an individual oral experience presentation during the introduction seminar. This activity also works as an icebreaker in adult learning contexts (Bowman, 2008).

Prior experiences of the learner suggest that the adult learner's mental models and prior experiences should be used as a resource for learning (Knowles, Holton and Swanson, 2015). Therefore, we should clarify that they should use their experience and that they will learn from each other (Bowman, 2008; Humble and Mozelius, 2021) and reinforce and add arenas to share previous knowledge and expectations. Further, we could design learning activities where the course participants reflect on what they have learnt in relation to previous knowledge and experiences and how the new knowledge can be applied in their professional work. This can help build a network and to realise they are part of a knowledgeable group. In the long run, this can support them to identify, test and even change their mental models (Knowles, Holton and Swanson, 2015).

Readiness to learn highlights the importance that adult learning should be life-related and that tasks conducted in this setting are developmental (Knowles, Holton and Swanson, 2015). The empirical material shows that the course participants expect to learn more about digitalisation from a theoretical and practical perspective (cf. Humble and Mozelius, 2021). Through research-based knowledge, they want to advance their knowledge in digitalisation and acquire tools to use in their organisational setting. Therefore, one suggestion is based on theories and models to help them argue for digitalisation or transformation in their contexts. Another suggestion is to add critical thinking and debate how and when digitalisation or digital transformation is out of range.

Orientation to learning points out that adult learning should be problem-centred and contextual (Knowles, Holton and Swanson, 2015). Here are interested in understanding how the learning has affected them and their organisation. An early assignment, as part of the check-in, where the course participants formulate their needs and how to involve their work in their development and training, could be one way forward (cf. Bennetts, Elliston and Maconachie, 2012). The assignments are designed so that they can adjust them to their specific needs and practical work, whereas the learning diary can be improved by designing it to help the participants align the new knowledge to their prior knowledge (cf. Humble and Mozelius, 2021) and transform the theoretical knowledge into their work situation.

Motivation to learn stresses that the learning should focus on intrinsic value and the personal payoff for the adult learner (Knowles, Holton and Swanson, 2015). We can therefore design learning activities where the course participants' new experiences and knowledge are related to prior experiences/knowledge, their professional development and how this will benefit the course participants on an individual and organisational level.

7. Conclusion

Higher education plays a crucial role in lifelong learning, but traditional academic structures and courses are not designed for full-time working adults. Therefore, higher education must rethink course design to meet the needs of working professionals. In this paper, the theory of andragogy has been used as a theoretical lens to identify redesign options for increased pass rate and learner satisfaction in professional development. The study reports on two instances of a master-level course aimed at professional development in digitalisation and digital transformation. The findings show the importance of designing learning activities where the course participants' experiences and prior knowledge are used as resources for learning. As an instructor, it becomes essential to clarify that the course participants should use their experiences to learn from each other. The material also shows that the adult learner wants to focus on their learning process, which can be supported by clear and structured information/instructions provided in written and recorded form and well in advance.

Further, the adult learner wants to integrate the new knowledge into their work environment. Tasks should be designed to help adult learners use the new knowledge in their professional roles and work. One way of supporting work-integrated learning is using problem-oriented tasks where research-based knowledge is applied in real work situations and designed to help the adult learner align the new knowledge with prior knowledge. The identified redesign options create opportunities to increase adult learner satisfaction and pass rate by addressing pedagogical parts like readiness, orientation, and motivation to learn according to the current higher education system.

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