

# “Utilizing a professional role model for development of a learner-centered learning program for managers”

## AUTHORS

Eduard Maltsev  <https://orcid.org/0000-0001-8475-8457>

## ARTICLE INFO

Eduard Maltsev (2018). Utilizing a professional role model for development of a learner-centered learning program for managers. *Knowledge and Performance Management*, 2(1), 38-46. doi:[10.21511/kpm.02\(1\).2018.04](https://doi.org/10.21511/kpm.02(1).2018.04)

## DOI

[http://dx.doi.org/10.21511/kpm.02\(1\).2018.04](http://dx.doi.org/10.21511/kpm.02(1).2018.04)

## RELEASED ON

Wednesday, 14 November 2018

## RECEIVED ON

Thursday, 04 October 2018

## ACCEPTED ON

Monday, 05 November 2018

## LICENSE



This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/)

## JOURNAL

"Knowledge and Performance Management"

## ISSN PRINT

2543-5507

## ISSN ONLINE

2616-3829

## PUBLISHER

LLC “Consulting Publishing Company “Business Perspectives”

## FOUNDER

Sp. z o.o. Kozmenko Science Publishing



NUMBER OF REFERENCES

**30**



NUMBER OF FIGURES

**2**



NUMBER OF TABLES

**0**

© The author(s) 2026. This publication is an open access article.



BUSINESS PERSPECTIVES



LLC "CPC "Business Perspectives"  
Hryhorii Skovoroda lane, 10, Sumy,  
40022, Ukraine

[www.businessperspectives.org](http://www.businessperspectives.org)

**Received on:** 4<sup>th</sup> of October, 2018

**Accepted on:** 5<sup>th</sup> of November, 2018

© Eduard Maltsev, 2018

Eduard Maltsev, Associate Professor  
at Management of Organizations  
Department, National University of  
"Kyiv-Mohyla Academy", Ukraine.



This is an Open Access article,  
distributed under the terms of the  
[Creative Commons Attribution 4.0  
International license](https://creativecommons.org/licenses/by/4.0/), which permits  
unrestricted re-use, distribution,  
and reproduction in any medium,  
provided the original work is properly  
cited.

Eduard Maltsev (Ukraine)

# UTILIZING A PROFESSIONAL ROLE MODEL FOR DEVELOPMENT OF A LEARNER-CENTERED LEARNING PROGRAM FOR MANAGERS

## Abstract

The article is devoted to learner-centered learning program development for adult learners, which are experienced professionals – chief executives. The high speed of learning and precise learning outcomes are seen as the main need of an executive in a learner role. A learner-centered learning program satisfies the need.

The article suggests the use of a professional role model of a learner – after learning program completion – as a main tool for the development of an appropriate learner-centered learning program. The details of the professional role model, as well as an algorithm of learner-centered learning program development, are discussed.

One of the key problems in learning program development is that the skills, competencies and capabilities developed during learning programs often can't be applied outside the learning program – in "real life" contexts. To enable a learner to be successful in real contexts, it is suggested to use a role concept in different contexts. The learning program in this case should develop not only the ability to play a role, but also play it in different contexts; not just to acquire new roles, but to be able to reduce roles for simpler ones, as well as to compose new roles.

## Keywords

role model, curriculum design, learner experience  
design, capability, meta-capability, management,  
management training

## JEL Classification

A29, M10

## INTRODUCTION

Modern education exists in conditions of exponentially growing scope of knowledge. Life-long learning becomes a usual practice in personal and professional life. The meaning of a career changes. People may change their professions and the roles they play several times during their professional lives. Understanding of management as the profession is also changing. Learning programs for adult learners – executives – in these conditions should respond to the need of learners to learn faster and achieve precise learning outcomes.

Learning program for managers development is at the center of this article. The focus of the researchers and learning program developers has moved over time: from curriculum development and curriculum design to instructional design, the learner as a user experience and learners' reflective practices. New methods of learning program development aim to create or improve learners' knowledge, skill, competencies, abilities, capabilities or even to develop personal identity and professional managerial attitude.

Traditionally, the methods were related to curriculum development as a subject matter structured body of knowledge. Skills, competencies or capabilities development considered just the learning experience of a learner during learning – not previous or future experience.

Skills, competencies and capabilities developed during a learning program often can't be applied outside the learning program – in future real life contexts. To enable a learners' success in real contexts, it is suggested to consider different contexts during learning program development and actively apply a role concept, not just skill or competence concepts. The learning program in this case should develop not only the ability to play a role, but also to play it in different contexts; not just to acquire new roles, but to be able to reduce roles for simpler ones, as well as to compose new roles.

The problem of curricula development, which acquires up-to-date knowledge, is actual for the educators in different spheres of education: primary, higher and post-graduate. The article focuses at the needs of adult learners – chief executives, which already have professional managerial experience. The curriculum, context, skill, knowledge and role concepts applied within conceptual modelling approach, which is a key methodology of this article. The concepts are considered in the following section.

## 1. THEORETICAL BASIS

Learning program development is a matter of great attention for researchers and teaching practitioners for many decades. Dewey (2013) paid attention to two conflicting aspects related to a curriculum as a subject matter body of knowledge: "For the scientist, the subject matter represents simply a given body of truth to be employed..." (p. 22). "As a teacher... He is concerned with the subject matter of the science as representing a given stage and phase of the development of experience. His problem is that of inducing a vital and personal experience." (p. 23). Since the Dewey's book was edited for the first time in 1900, the relationship between a learner and a curriculum is the focus of the research. At the end of 2016, the most cited sources according to Google Scholar for the request "curriculum" were Dewey (2013), Kliebard (2004), Apple (2004), Tyler (2013). The curriculum definition varies from the document like syllabus, program outline or instruction, which describes a subject matter body of knowledge to be taught to a learner experience and activities, which organizes content-based experience acquirement.

"Curriculum development" (Taba, 1962; Stenhouse, 1975; Richards, 2001) and "curriculum design" (Brown, 1994; Tanner & Tanner, 1980; Jacobs, 1989) are strongly related topics to the curriculum itself. The curriculum development is usually understood as a process of curriculum-making, while the curriculum design is the outcome or result of such development.

The fundamental questions in curriculum development are the following:

- what is the objective of learning intervention?
- which learning experience leads to achievement of the purpose?
- how to organize the experience effectively?
- how to evaluate the effectiveness of the learning intervention?

According to Taba (1962), the following steps are important for curriculum design: diagnosing the needs; formulating the learning objectives; selecting the content; organizing the content; selecting the learning experiences; organizing the learning experiences; organizing the evaluation – ways and means of doing it. The curriculum design should create the "curriculum window", which enables program participants to develop their ability to solve problems, make decisions independently, think critically, globally and creatively.

Exploring the design and implementation in language teaching and learning, Brown (1994) had formulated principles, which help teachers to support changes "in a world in desperate need of change: change from competition to cooperation, from powerlessness to empowerment, from conflict to resolution, from prejudice to understanding" (p. 442). Among the principles are princi-

ples of meaningful learning, strategic investment, communicative competence, self-confidence and the intrinsic motivation principle. Consideration of the principles enables the learner to keep in the focus of a learning program.

Instructional design (Gagne et al., 1992; Sweller et al., 1998; Reigeluth & Carr-Chellman, 2009) is another spectrum of approaches to organize learning and teaching activities. According to Gagne et al. (1992), "Instruction is a set of events that affect learners in such a way that learning is facilitated" (p. 3). It describes not just class activities or a teacher influence, but any event intentionally generated by text, picture, video, audio, physical and virtual object or their combination. There are following basic assumptions of any instructional design suggested by Gagne et al. (1992): it aids individuals to learn; immediate and long-range aspects to be considered; instruction can greatly affect individual human development; it should be conducted by means of a systems approach; it should be based on knowledge of how people learn (pp. 4-5).

A design approach as a wide concept contrary to the explanatory mood of scientific approach aims to create new worlds of human beings in an iterative way. "The designer has a prescriptive rather than descriptive job. Unlike scientists who describe how the world is, designers suggest how it might be. Designers are therefore all 'futurologists' to some extent. The very essence of their job is to create the future, or at least some features of it" (Lawson, 2007, p.112). The design approach is actively used in a wide range of areas of innovation, including curriculum development, design, and transformation (Nicolettou et al., 2016).

Learning experience (LX) design is a relatively new approach, which "aims to create the opportunity for a good learning experience through our learning resources, learning systems and learning interactions" (Soulis et al., 2017). It is quite similar to user experience (UX) design, which is defined by Law et al. (2009) as "A person's perceptions and responses that result from the use or anticipated use of a product, system or service" (p. 727).

Schon (1991), in his book published for the first time in 1987, pays attention to dichotomies of information and knowledge, education and training,

learning and teaching and underlines that any education intervention can only provide opportunity, environment and encouragement. But the learning, which significantly influences the behavior, needs a pro-active, self-discovering and reflective attitude of the learner. It corresponds to ideas of Dewey (2013) who wrote: "Learning is active. It involves reaching out of the mind. It involves organic assimilation starting from within." (p. 9).

Competencies and capabilities are concepts important to explain the ability to perform key activities both at personal and organizational levels. According to Smith (2008), "Competencies are unique products or services, often created in the R&D labs, which can penetrate existing markets. Capabilities are the operational ability to deliver those new products and services efficiently, repeatedly and in sufficient volume" (p. 47). Together with corporate resources, capabilities and competencies are important aspects for development of competitiveness and strategic control of a company.

At a personality level, according to Vincent (2008), "Competence is the quality or state of being functionally adequate or having sufficient knowledge, strength and skill" (p. 1) and "Capability is a collaborative process that can be deployed and through which individual competences can be applied and exploited" (p. 1). The right questions about the competencies of a person are: "Does the person 'know how' and if so how well?" and "How well can the person apply the 'know how'?" The right question about capability is: "How to get things done that we need to get done?". Capability is context-dependent (Kidson, 2013; Stephenson, 1998; Holmes, 1999), which means that learning should also be context-related (Kidson, 2013, p. 12).

Stephenson (1998) makes distinction between "disaggregated competencies" and "holistic capabilities" (p. 3), defining also dependent and independent capabilities in two dimensions: familiar-unfamiliar context and familiar-unfamiliar problem. A way which better prepares a learner to act in the real world is the way from dependent capability to solve familiar problems in a familiar context to independent capability to solve unfamiliar problems in an unfamiliar context.

“Capability curriculum”, according to Holmes (1999), allows to reframe education-assessment-selection process into ‘identity project’, which develops learners’ identities during learning program. A participant-centered program, according to Holmes (1999) means that the curriculum provides generic capabilities that prepare learners for socialization in a selected social domain.

Role is a well-developed concept both in social science and in the systems approach. The role concept allows to model personal behavior in different contexts representing and understanding the personality as an integral part of wider socio-economic systems such as teams, organizations, communities and society. The concept can be used to understand and explain a person playing personal, social and professional roles applying functional (role-role) relationships (Loebe, 2003; Steinman, 2000; Biddle, 2013) and the whole-part relationships (Guizzardi, 2005; Thalheim, 2010; Thalheim & Tropmann-Frick, 2016). The role concept allows to resolve the issue of complexity of systems, which can’t be understood by analysis of their parts. As Mella (2015) states, “The properties of the parts are not intrinsic properties, but can be understood only within the context of the larger whole” (p. 595).

The focus of the aforementioned researchers is moving from programs themselves (curriculum, instructional, outcomes) to a learner. This does not neglect the importance of program design itself, but makes all program development learner-focused and learner-centric. This means that program designers need more sophisticated tools to use well-developed design and development approaches in learner-centric program creation.

The method of this research is conceptual modelling, which applies concepts and relationships between them to describe and design new concepts. The new concepts should allow to deal with complexity in a wide range of practically important tasks. The concepts and conceptual modelling is the key tool for conceptual design – development of new complex things, which can be implemented in real personal or social life.

The learning program development, which applies conceptual modelling and conceptual design, is the subject of the present paper. It is suggested

to keep a learner in the focus of the learning program development. The research question is formulated as follows: how to keep the focus of a program on the capabilities of an adult learner – chief executive – to act in different contexts, not just in a learning context.

## 2. RESULTS

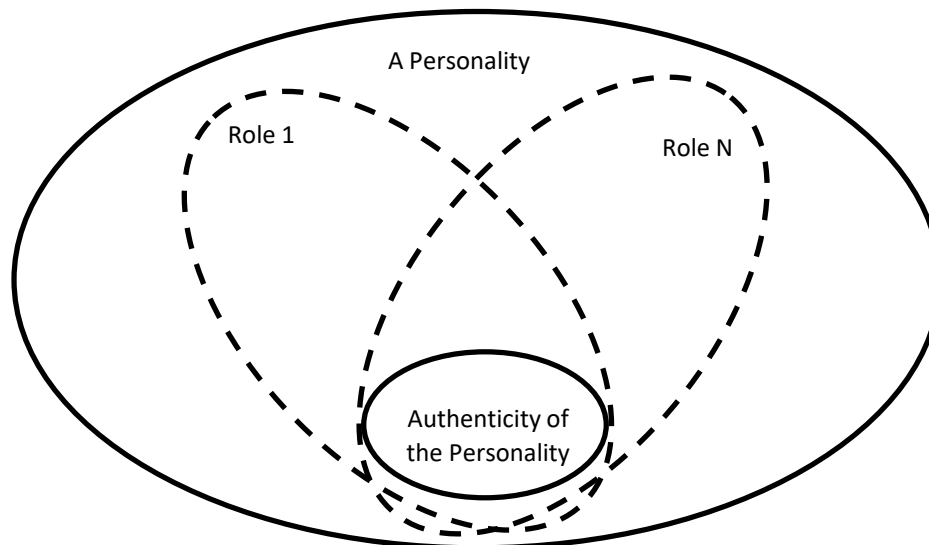
To keep a client in the focus of any organizational activity is a key principle of modern management. Such focus enables an organization to improve effectiveness and efficiency in the long-term perspective. The focus can also be explained as dedication to mission – understanding the client and value created by the organization for the client. The client focus principle can be applied not only to organizations, but also to programs, which creates value for learners treated as a program user or client.

To keep the learner in the focus, it is suggested to use a well-known principle of design approach: starting with the expected result. The main and strategically important learning outcome is the learner successful in what he (she) is doing – in domains related to the learning program. To shape this outcome at a conceptual level, it is suggested to use a few concepts: role, context and capability.

The role concept relates to a value which a person creates and captures playing the role for other people in their respective roles (teacher for students, doctor for patients, parent for kids, for example). Any learning program to a certain extent improves the ability of human beings to play their roles (the role set) – professional, social or personal.

The role set is a powerful concept, together with authenticity describing personality as a whole and representing uniqueness of personality. The appropriate Personality Conceptual Model is presented at Figure 1.

Authenticity of the person belongs to the person him(her)self and to each of the roles from the role set  $r(i)$ ,  $i = 1, N$  of the persons in the whole-part relationship. Personality is a wholeness for both authenticity and the role set. The personality can manifest itself in different roles, demonstrating



**Figure 1.** A Personality Conceptual Model

the behavior expected in the role. The role set  $r(i)$ ,  $i = 1, N$  is potentially unlimited and each role can be played in different contexts of the real world.

Bringing the role to the center of program design enables to focus the program on the acquisition by a learner of a body of knowledge, skills and abilities, necessary for performance of the role. This focus should work on a learners' success in the role selected – after completion of the learning, graduation from the learning program and coming back to the “real world” to play the role.

Context concept is suitable for the description of a phenomenon in different situations. The role playing in real life (the “real world”) takes place in a variety of different conditions. For example, a person learning to play a manager role in the real world can play it in commercial, government and non-governmental organizations. An organization might have creative and procedural, democratic and autocratic cultures.

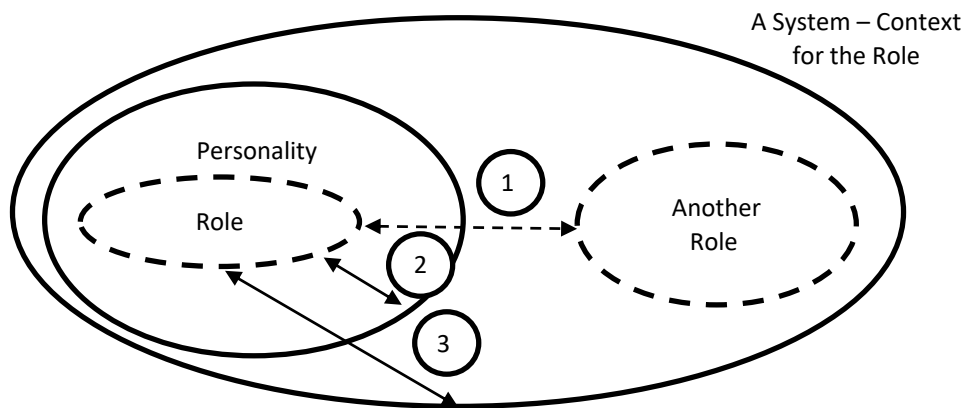
To be successful, a manager should be able to play his or her role in a spectrum of contexts, not in a single context. The wider the spectrum is, the better it is for a learner. The better the contexts from the spectrum correspond to real life, the better results a learner can therefore achieve in the real world. In the worst case, a learner after completing a learning program can play a role in a single – learning context.

The capabilities concept allows to determine the ability of a learner to play a role in a certain context. In this respect, capability relates to the role and can be treated as ability in a context. For example, ability to manage becomes a capability to manage soldiers in an army and a capability to manage programmers in an IT firm.

The ability itself might be represented with knowledge as the result of learning; skills as the result of practice and reflection of the practice with knowledge applied. The capability development means practice of a role in different contexts and further reflection. The reflecting part is crucially important as soon as it provides personalized knowledge within the role-context-capability triad.

The personalization of the capability development is very much in line with personal learner experience (user experience) as a user of a learning program. The success of the personalization depends on building blocks for the personalization and learners' capability at the beginning of the program. The creation of personal learner experience means use of the “entry capability” to develop expected “outcome capability” applying a) basic abilities (knowledge and skills) development, and b) development capabilities in personalized sets of contexts.

A role and its contextuality might be presented with the following model (Figure 2), which contains three types of relationships.



**Figure 2.** Three types of role relationships

The relationships of the first type – role-role relationships. The relationships of this type represent value, created by the role for other roles. The relationships of the second type represent whole-part relationships of the role as a part of a personality and the personality itself. The third type of the relationships represent whole-part relationship of the role as a part of a wider system, which can be treated as a context for the role.

To personalize a learning program, which improves the capability to play a role, a learning program designer should consider the following aspects of the roles construction:

- the role itself, which creates value for other roles (considering the first type (role-role) relationship between two roles);
- the personality of a learner, who is going to improve the capability to play a role (considering the second type (whole-part) relationship between the role as a part and personality as a wholeness);
- the context in which the role is going to be played (considering the third type (whole-part) relationship between the role and a system where the value exchange between two roles takes place).

The role model provides a conceptual tool for an algorithm of learner-centered learning program development. The algorithm might contain the following steps:

- role model understanding as a value creating substance;
- understanding of sub-roles, which create the composition of the role model;
- understanding other roles – recipients of value created;
- possible contexts where a role can be played;
- development building blocks of a program, including:
  - a block for a body of knowledge necessary for role performance acquiring and testing;
  - blocks for skills and abilities, necessary for role performance development;
  - tools for personalization learning paths considering personality characteristics;
  - ways of practicing role performance in different contexts, aiming at development of capabilities – abilities in different contexts;
- personality “measurement”, necessary for learning path personalization. This measurement might position the potential learner on a stage of personal life cycles, evaluating levels of personal and professional maturity;
- personal learning paths development.

### 3. DISCUSSION

In a complex and extensively changing world, research is a crucially important part of the program development. The research enables to upgrade a body of knowledge, which is important for role performance necessary for program development. But, in a changing environment, the research is also important for achieving contexts understanding. The role and the contexts are dynamically changing, which needs periodic research to upgrade the understanding in accordance with the dynamics of the change.

The potential, current and former program participants are important elements of such research. They may play the roles or form their learning expectations according to their experiences, interpretations and beliefs. Qualitative and quantitative research of their roles performance in different working environments should provide a strong evidence base for the conceptual models of the roles and roles' contexts.

The research actually links personal and collective realities with conceptual models – tools for creation of learner-centered programs. To develop learner-centered learning program, a program designer should:

- know the actual (modern) functionality of a role. Nowadays, for example, it is radically changing due to knowledge explosion, business models' digitalization, AI and machine learning development;
- be able to represent the role as a composition of other roles with less functionality;
- understand existing professional maturity levels of program participants in terms of their actual capability to play the role before the program commences;
- understand existing personal maturity levels to be able to evaluate if it is sufficient for professional role performance;
- know the diversity of experiences and knowledge of potential group' participants – both for personalization of individual learning

paths and so as to be able to use the diversity for productive exchange within the group;

- know potential contexts/systems where the professional roles are going to be played.

The most difficult part of the research is contexts research – the conditions where the role should be played. Reality of the contexts lets create reconstruction of the context conditions in class and imitates role performance in these different conditions.

The learner-centered learning program design should combine possible learning path personalization with diversification of possible contexts where the professional role performance can take place. The learners diversity in a learning group may complexify the personalization, but at the same time it is a source of diversity of experiences obtained and exchanged by the program participants. To combine the benefits of diversity with personalization benefits, the learner experience management should consider the following aspects of a program development: the learner-centered learning program development in accordance with the steps mentioned above; group of learners' selection; tuning personal learning paths due to personal and professional maturity levels; tuning contexts-dependent parts of the program; tuning program reflections due to personal and group development experiences.

The learner-centered learning program design approach is most valuable for experienced professionals who need to develop and acquire new capabilities, for example, senior executives. The experience in playing professional roles is the main source of new experience of a role reduction and composition. This new experience, as soon as it is properly reflected, might develop meta-capability to learn and acquire new professional roles independently. The meta-capability can be one of the main learning outcomes of Master of Business Administration programs in executive management education.

The design approach is also useful for learners with limited or no professional experience – for example, students of higher school. In this case, personal and social roles performance experience might be a useful source of meta-capability development.

## CONCLUSION

The conceptual modelling approach allows to apply role and context concepts to identify the individual learning needs of a program participant. The personalization links role model in past and future contexts of a participant and supposes development of individual learning paths from the previous to a new role set. Each role can potentially be reduced for simpler roles, which define contextual capability, necessary for successful implementation of the role in the context.

Due to diversity of previous experience in the role in a group of learning program' participants, it is possible to use the diversity for productive exchange within the group. Integrity of individual paths and the learning program as a whole should be a matter of key importance for a designer of the learner-centered learning program.

The roles can also be composed to a new role to convert a program participant from role-taking to role-making mode. The experience of a participant in decomposing a role and composing new roles is extremely valuable because it takes a learner from context-dependent role player to context-independent role developer.

In a permanently changing environment, the adult learner – chief executive – may face the need to play a new role in a new context. The reflected experience of playing and developing different roles in different contexts might and should become a solid ground for meta-capability – the capability of self-dependent design and performance of completely new roles and respective capabilities.

## REFERENCES

- Apple, M. W. (2004). *Ideology and curriculum*. New York, NY: Routledge. <https://doi.org/10.1080/00131729109335179>
- Biddle, B. J. (2013). *Role Theory: Expectations, Identities, and Behaviors*. New York, NY: Academic Press, Inc.
- Brown, L. K. (1994). *Teaching by principles. An Interactive Approach to Language Pedagogy*. Englewood Cliffs, NJ: Prentice Hall Regents.
- Dewey, J. (2013). *The School and Society and The Child and the Curriculum*. Chicago, IL: The University of Chicago Press.
- Gagne, R. M., Briggs, L. J., Wager, W. W. (1992). *Principles of instructional design*. Orlando, FL: Harcourt Brace College Publishers. Retrieved from <https://trove.nla.gov.au/work/6994585>
- Guizzardi, G. (2005). *Ontological Foundations for Structural Conceptual Models*. Enschede, The Netherlands: Telematics Instituut Fundamental Research Series, University of Twente.
- Holmes, L. (1999). Competence and Capability: from 'confident trick' to the construction of the graduate identity. In D. O'Reilly, L. Cunningham & S. Lester (Eds.), *Developing the Capable Practitioner* (pp. 83-98). London: Kogan Page.
- Jacobs, H. H. (1989). *Interdisciplinary curriculum: Design and implementation. Descriptive Report*. Alexandria, VA: Association for Supervision and Curriculum Development. Retrieved from <https://eric.ed.gov/?id=ED316506>
- Kidson, M. (2013). *Civil Service Capabilities. A discussion paper*. London, UK: Institute for Government. Retrieved from <https://www.instituteforgovernment.org.uk/publications/civil-service-capabilities>
- Kliebard, H. M. (2004). *The struggle for the American curriculum, 1893-1958*. New York, NY: Routledge. Retrieved from <https://eric.ed.gov/?id=ED271460>
- Law, Effie L-C., Virpi Roto, Marc Hassenzahl, Arnold P.O.S. Vermeeren, Joke Kort (2009). *Understanding, Scoping and Defining User eXperience: A Survey Approach*. Proceedings of the 27th International Conference on Human Factors in Computing Systems, CHI 2009, Boston, MA, USA, April 4-9, 2009. <https://doi.org/10.1145/1518701.1518813>
- Lawson, B. (2007). *How Designers Think: The Design Process Demystified*. Amsterdam: Elsevier.
- Loebe, F. (2003). *An Analysis of Roles. Towards Ontology-Based Modelling* (Master Thesis, Institute for Medical Informatics, Statistics and Epidemiology (IMISE), University of Leipzig). Retrieved from [https://www.researchgate.net/publication/245283175\\_An\\_Analysis\\_of\\_Roles\\_Towards\\_Ontology-Based\\_Modelling](https://www.researchgate.net/publication/245283175_An_Analysis_of_Roles_Towards_Ontology-Based_Modelling)
- Mella, P. (2015). Give Me an Arrow and I Will Construct a World for You. *Creative Education*, 6, 594-611. <http://dx.doi.org/10.4236/ce.2015.66059>

15. Nicolettou, A., Soulis, S., Seitzinger, J., & Chester, A. (2016). Innovation by Design: A Strengths-Based, Data-Informed and Design-Led Approach to Curriculum Transformation. In *Proceedings of 9th annual International Conference of Education, Research and Innovation, Seville, Spain, 14-16 November, 2016* (pp. 3870-3878). <http://dx.doi.org/10.21125/ic-eri.2016.1910>
16. Reigeluth, C. M., & Carr-Chellman, A. A. (Eds.) (2009). Understanding Instructional Theory. In *Instructional-Design Theories and Models. Volume III. Building a Common Knowledge Base* (pp. 3-26). New York, NY: Routledge.
17. Richards, J. C. (2001). *Curriculum development in language teaching*. New York, NY: Cambridge University Press.
18. Schon, D. A. (1991). *Educating the Reflective Practitioner. Towards a New Design for Teaching and Learning in the Professions*. San Francisco, CA: Jossey-Bass.
19. Smith, R. (2008). Harnessing Competencies, Capabilities and Resources. *Research Technology Management: The Journal of the Industrial Research Institute*, 51(5), 47-53. <http://dx.doi.org/10.1080/08956308.2008.11657525>
20. Soulis, S., Nicolettou, A., Seitzinger, J. (2017). Using Learner Experience Design (LX) for Program Enhancement. Conference Paper presented at *Open and Distance Learning Association of Australia Conference Expanding Horizons in Open & Distance Learning, 5-7 February 2017, Melbourne, Australia*. Retrieved from [https://www.researchgate.net/publication/313914239\\_Using\\_Learner\\_Experience\\_Design\\_LX\\_for\\_Program\\_Enhancement/overview](https://www.researchgate.net/publication/313914239_Using_Learner_Experience_Design_LX_for_Program_Enhancement/overview)
21. Steinman, F. (2000). On the representation of roles in object-oriented and conceptual modelling. *Data & Knowledge Engineering*, 35, 83-106. [https://doi.org/10.1016/S0169-023X\(00\)00023-9](https://doi.org/10.1016/S0169-023X(00)00023-9)
22. Stenhouse, L. (1975). *An introduction to curriculum research and development*. London: Heinemann.
23. Stephenson, J. (1998). The Concept of Capability and its Importance in Higher Education. In J. Stephenson & M. Yorke (Eds.), *Capability and Quality in Higher Education* (pp. 1-13). London, NY: Kogan Page.
24. Sweller, J., Van Merriënboer, J. J. G., Paas, F. G. W. C. (1998). Cognitive Architecture and Instructional Design. *Educational Psychology Review*, 10(3), 251-296. <https://doi.org/10.1023/A:1022193728205>
25. Taba, H. (1962). *Curriculum development: Theory and practice*. New York, NY: Harcourt, Brace & World.
26. Tanner, D., Tanner, L. N. (1980). *Curriculum development: Theory into practice*. New York, NY: Macmillan Publishing.
27. Thalheim, B. (2010). Towards a Theory of Conceptual Modelling. *Journal of Universal Computer Science*, 16(20), 3102-3137. <http://dx.doi.org/10.3217/jucs-016-20-3102>
28. Thalheim, B., Tropmann-Frick, M. (2016). Models and their Capability. *Computational Models of Rationality, College Publications Series*, 29, 34-56.
29. Tyler, R. W. (2013). *Basic principles of curriculum and instruction*. Chicago, IL: The University of Chicago Press.
30. Vincent, L. (2008). Differentiating Competence, Capability and Capacity. *Innovating Perspectives*, 16(3), 1-2.