

Enhancing teachers' professional knowledge and situational skills

prof. Erno Lehtinen and research group
Education Academy
Vytautas Magnus University



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PROJEKTAS



LMT
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General problem of the research project

High level work as expert teacher

When working in the schools, teachers get practice and gradually develop their own way of teaching

However, not all teachers develop high level teaching skills but for many increasing experience leads to arrested expertise development

When new teachers enter in the profession, they have a lot of formal knowledge about the subject they teach and pedagogy



To understand better how the development of teacher expertise can be enhanced, it is important to know ...

WHAT KIND OF PRACTICAL KNOWLEDGE TEACHERS DEVELOP IN THE COURSE OF EXPERIENCE

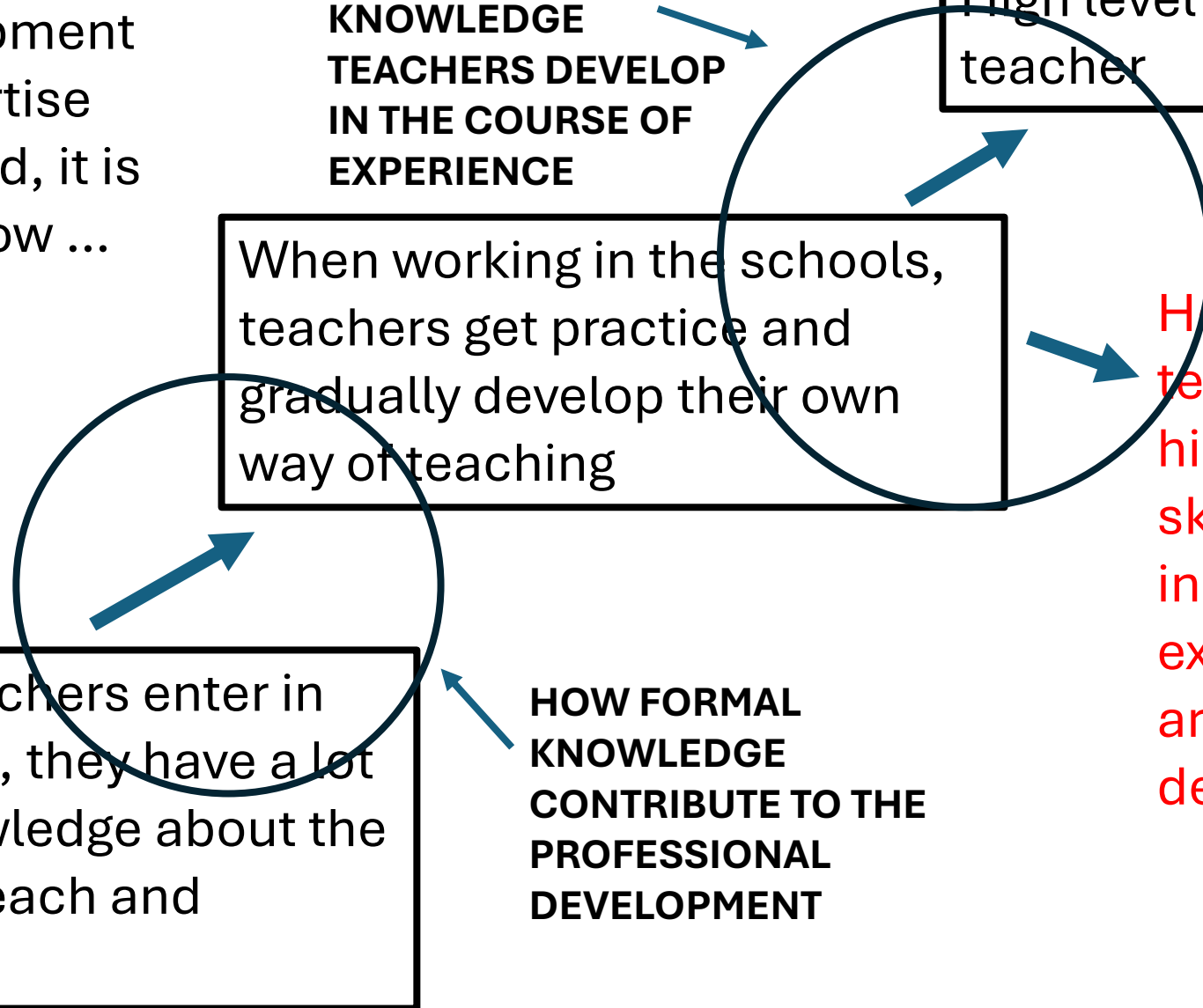
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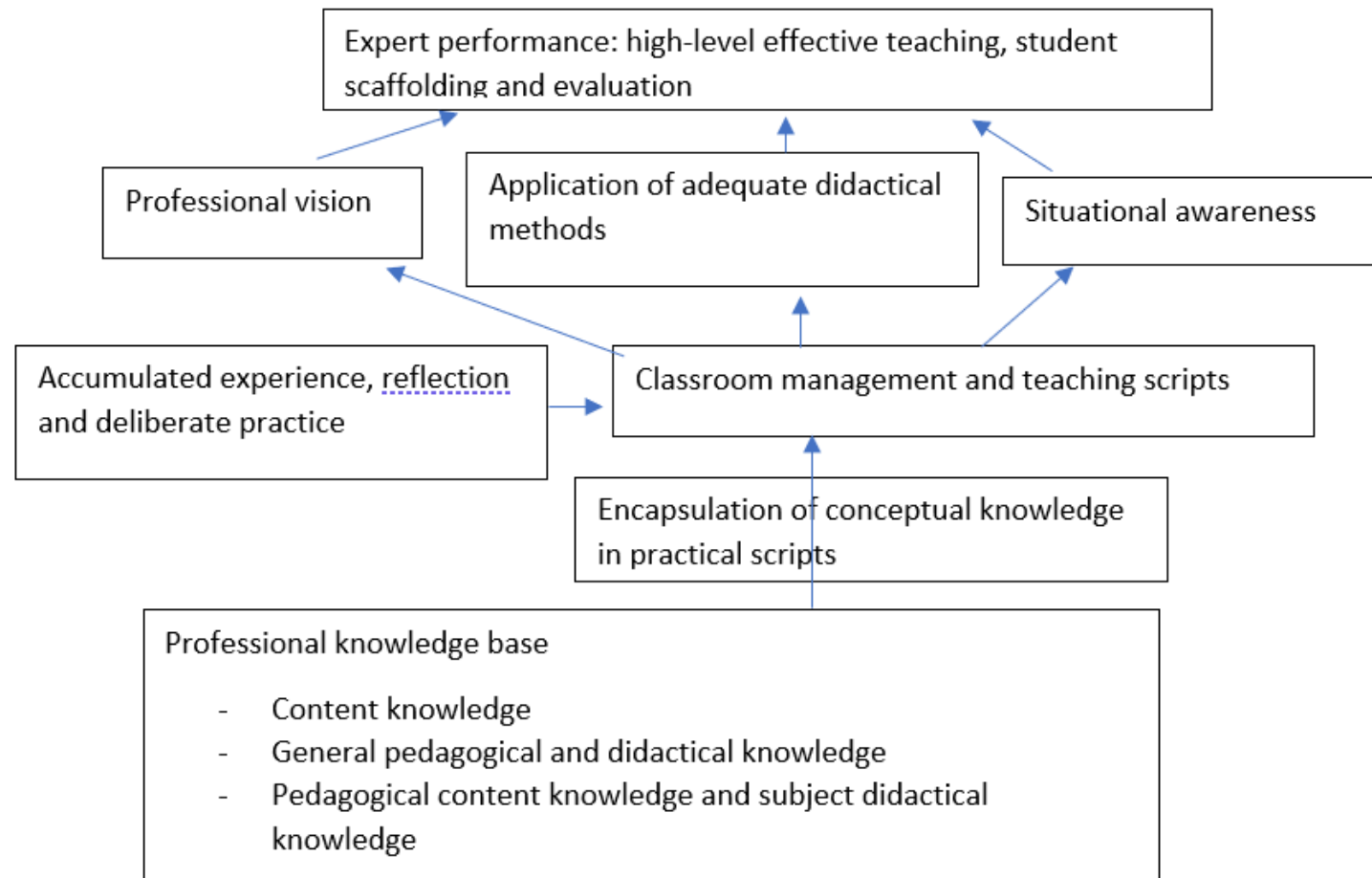
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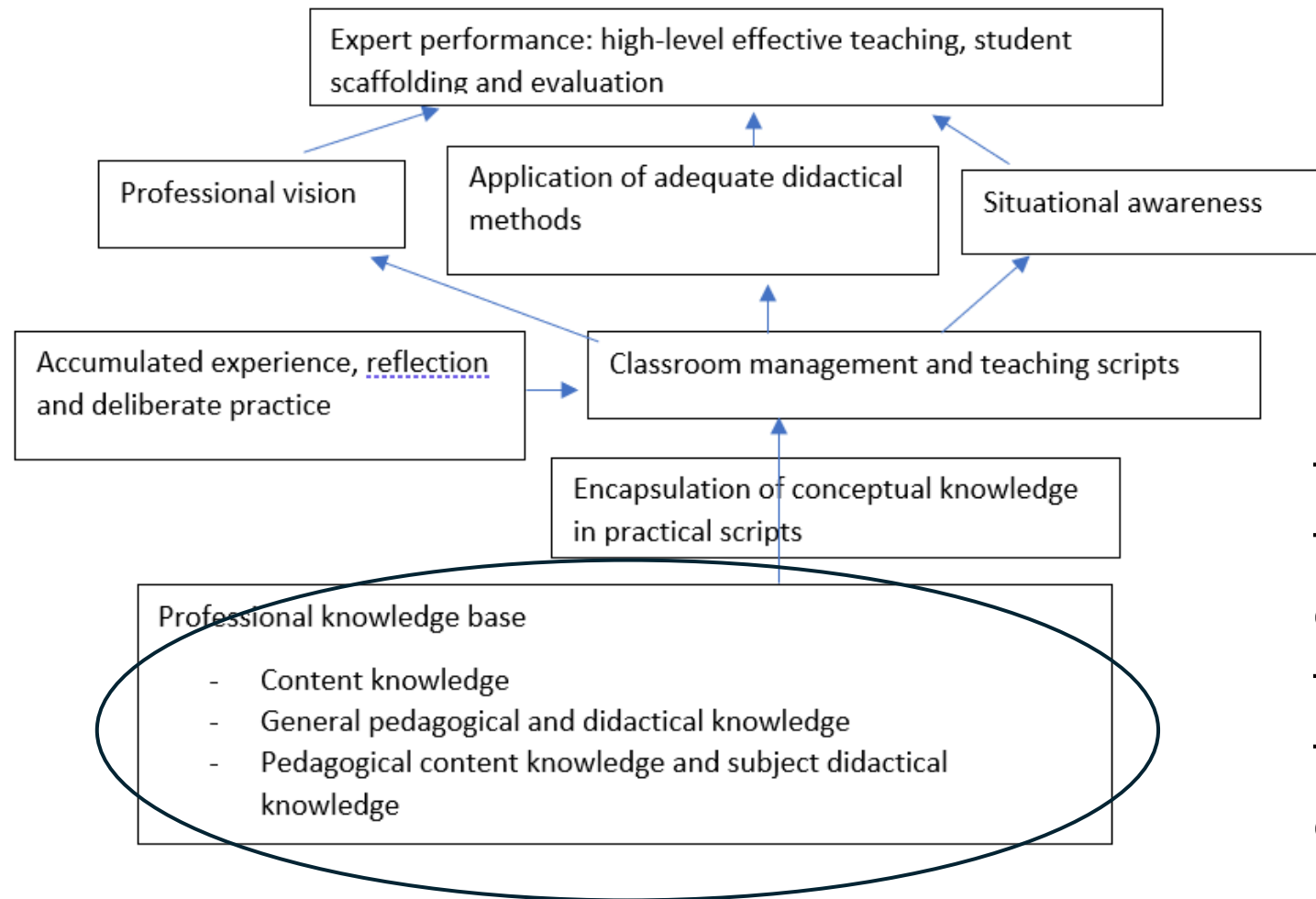
HOW FORMAL KNOWLEDGE CONTRIBUTE TO THE PROFESSIONAL DEVELOPMENT



Theoretical model of the project

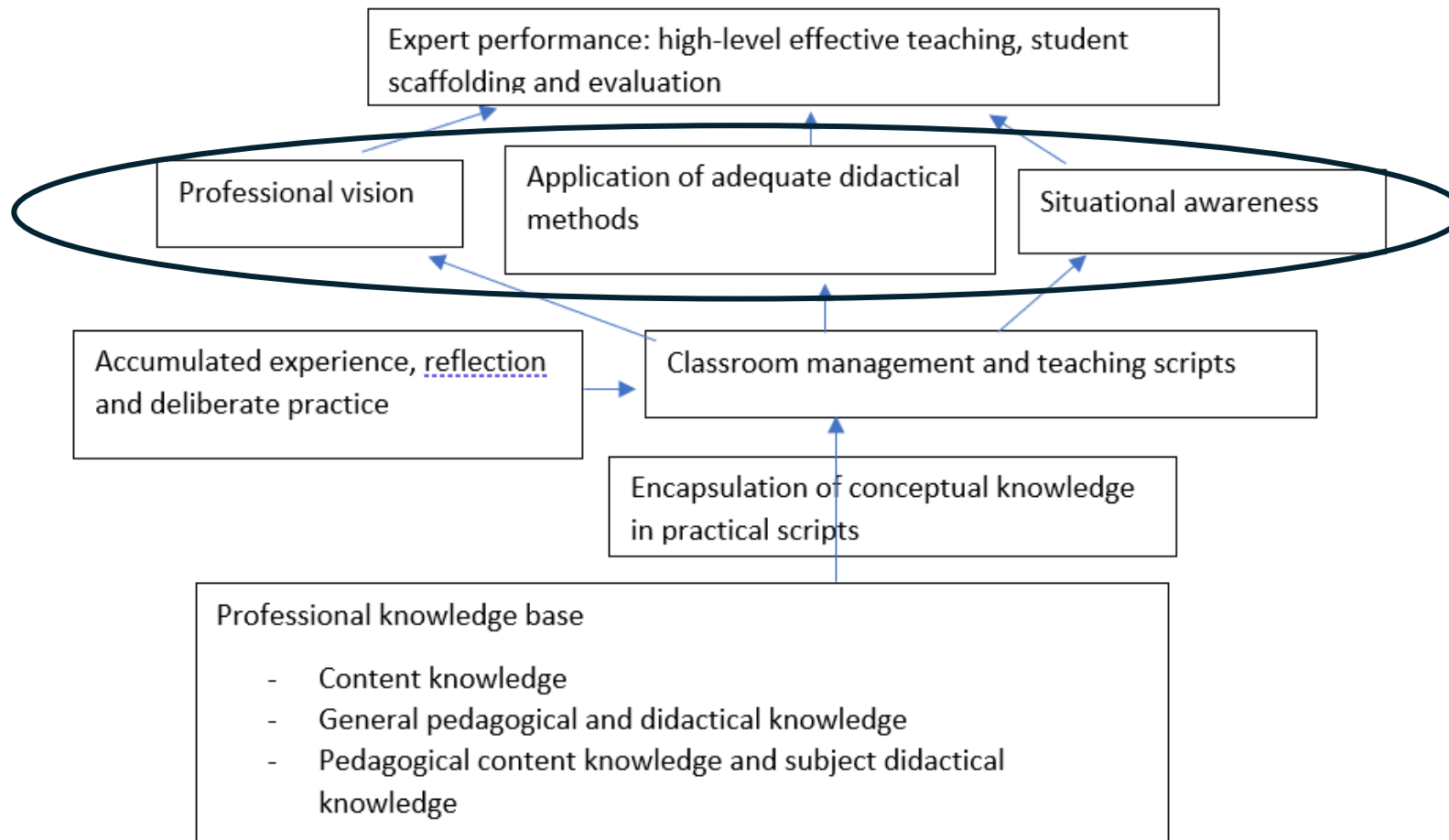


Theoretical model of the project



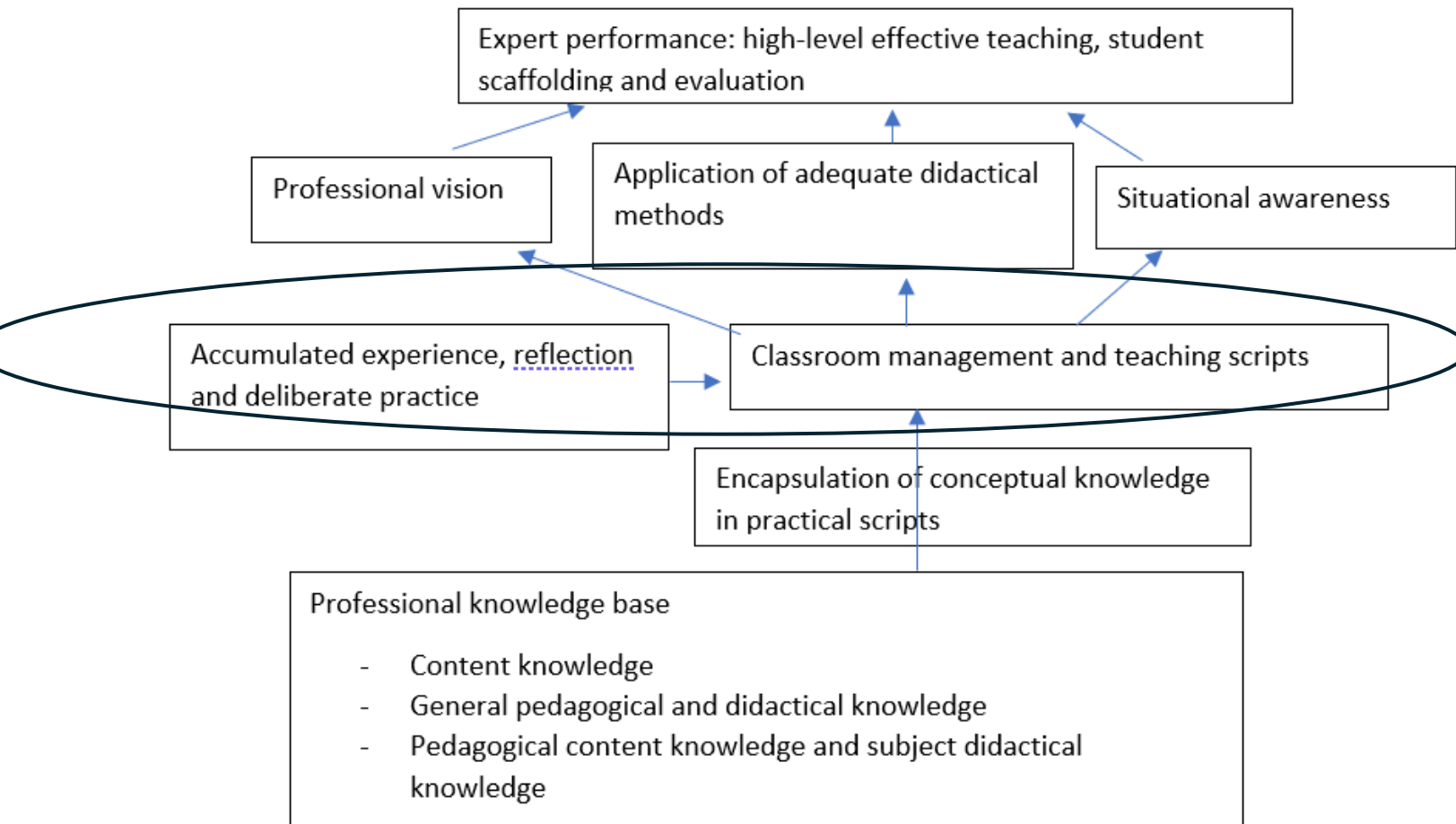
Many studies have show that these aspects of teachers' formal knowledge are predictors of student's learning. However, the effects are so small that formal knowledge is nor directly explaining teaching efficiency.

Theoretical model of the project



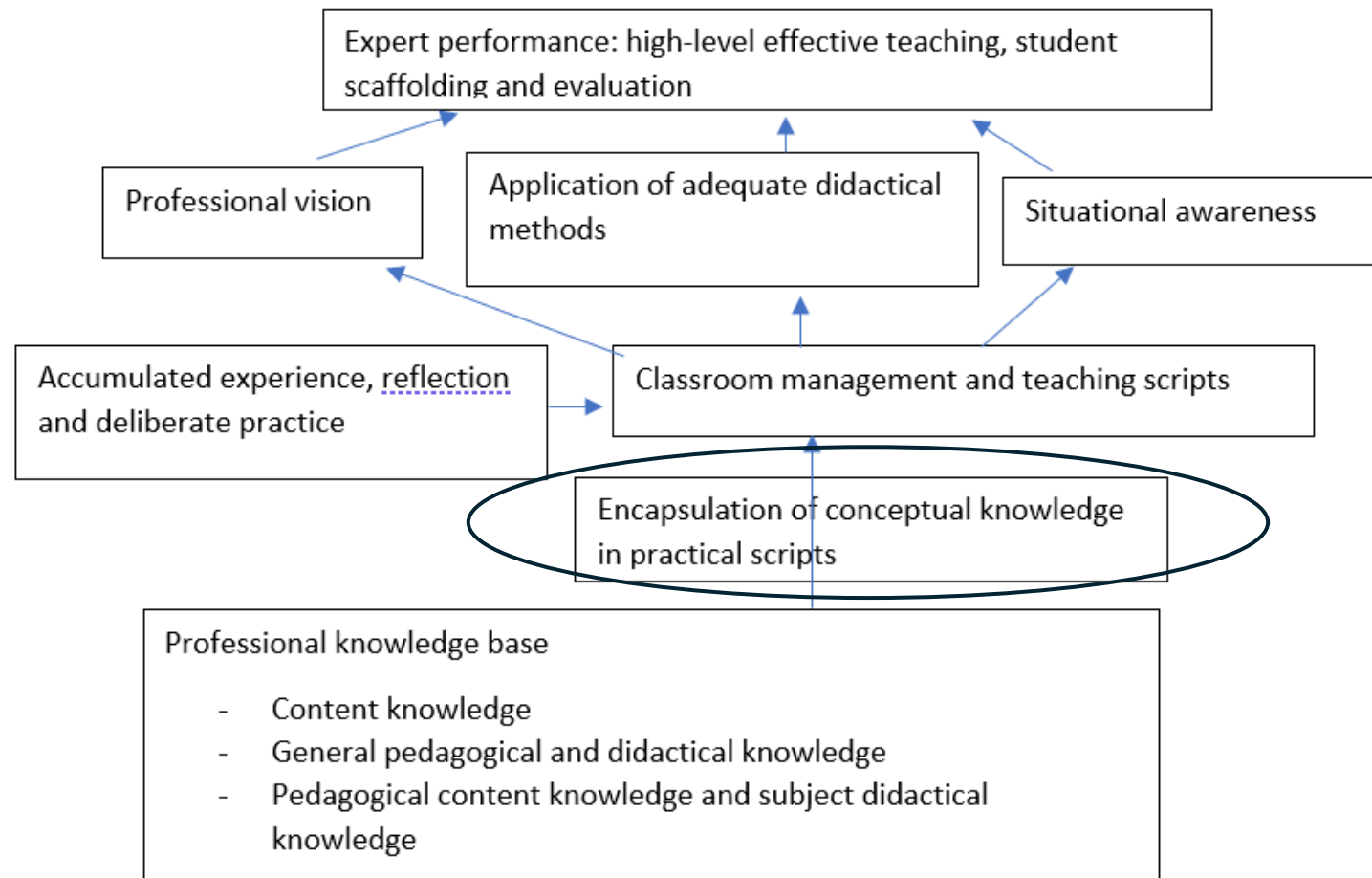
Recently two terms, professional vision and situation awareness, haven deepening the analysis of teaching quality. All these are depending on the availability of practical knowledge, which can be activated in quickly changing situations

Theoretical model of the project



Formal professional knowledge is too general and slow to be used in complex practical situations. Expertise research in medicine has uncovered the nature of practical knowledge expert use clinical practices, called illness scripts. Recently these ideas have applied in describing classroom management and teaching scripts which teachers develop on the basis of practical experience in classroom.

Theoretical model of the project



Key finding of the practical scripts of high-level experts is that these are not only generalizations of practical experiences, but they include also “encapsulated” scientific knowledge which can be activated when needed.

Sub-studies

Sub-study 1. Collecting background information

- Secondary analyses on teacher competences and professional development data of TIMSS 2019 and 2023: studies analyses how various aspects of professional development and teacher competences are related to student learning.
- Review and meta-analyses about studies focusing on various aspects of teachers' professional knowledge such as general pedagogical knowledge, pedagogical content knowledge and situational knowledge and skills.

Sub-study 2. Cross sectional comparison of student teachers', novice teachers' and expert teachers' professional knowledge and practical skills

- The project applies innovative state of the art methods including:
- Tests of general pedagogical/psychological knowledge and pedagogical content knowledge in mathematics and science (Gess-Newsome, 2019; Grigaliūnienė et al., 2023; Voss et al., 2011)
- Video-based stimulated recall interview methods to analyze classroom management and teaching scripts (Wolff et al., 2021)
- Mobile eye-tracking and stimulated recall-based methods for analyzing professional vision and situational awareness in actual teaching situations (van Driel et al., 2023; Pouta et al., 2021; 2023).

Sub-study 3. Intervention for pre- and in-service teachers

- Experimental design: Pretest, intervention - Post-test Delayed test
- 40 teacher students and 40 experienced teachers (mathematics and science) are randomly assigned to experimental and control groups.
- The intervention program focuses on simultaneously strengthening conceptual professional knowledge, classroom management and teaching script formation, knowledge encapsulation, professional vision and situation awareness skills.

Large research group with many sided expertice

Prof. dr. Erno Lehtinen, PI of the project, expert of quantitative desiggnns

Prof. dr. Lina Kaminskienė, expert of teachers' professional development

Prof. dr. Vilma Žydžiūnaitė, expert of qualitative methods

Prof. dr. Palmira Pečiuliauskienė, expert of science teaching

Prof. dr. Aušra Rutkienė, expert of mathematics teaching

Doc. dr. Ilona Tandzegolskienė-Bielaglovė, expert of socio-emotional skills

Doc. dr. Vaida Jurgilė, expert of teacher leadership

Doc. dr. Sigita Urbonienė, expert of mathematics teaching

PhD student Monika Grigaliūnienė, expert of pedagogical content knowledge

PhD student Kateryna Horlenko, expert of eye-tracking research

PhD student Jovita Matulaitienė, expert in self-regulated learning development

Agnė Liucilė Grickevičė, educational project management

International collaboration

The project is based on large international collaboration and all the international partners have specific tasks in the implementation of the study.

Prof. dr. Jon Star, Harvard University

Prof. dr. Els Boshuizen, Open University of the Netherlands

Prof. dr. Halszka Jarodzka, Open University of the Netherlands

Prof. dr. Andreas Gegenfurtner, University of Augsburg

Senior researcher Maikki Pouta, University of Turku

International doctoral training: ICO Summer school, Summer Schools in organized in Kaunas, Nordic doctoral training (Universities of Gothenburg and Turku)

International networks: EARLI, EARLI JURE

Planned outcomes of the project

Major scientific outcomes:

- 9 scientific articles to be published in high-level international journals
- 1 monograph to be published by a prestigious international publisher

Contributions to international projects:

E.g. Horizon project: Cultural Literacies' Value in Europe (CLiViE - 101132285 - GAP-101132285) HORIZON-CL2-2023-HERITAGE-01-07.
The Cultural Literacies' Value in Europe (CLiViE) project

Educational impact

Better understanding of the formation of high-level practical knowledge and skills help planning pre-and in-service training for teachers

Novel intervention methods developed in the project can be scaled up and used in pre- and in-service teachers' training programmes

Novel diagnostic tools developed in the project can be applied in following the efficiency of teacher training

Dissemination of findings

- Teachers participating in the research activities and discussions about research-based recommendations
- Summer schools and seminars for teacher educators and doctoral students
- National final conference targeted to policy makers
- International conference together with UNESCO IBE
- Popular articles and web pages targeted to professional communities

Thank you for you attention!