

# THE RELEVANCE OF THE CONCEPT OF POWERFUL KNOWLEDGE IN EDUCATIONAL SCIENCES

Gunita Elksne

University of Latvia, Latvia

## ABSTRACT

The global changes of the twenty-first century are largely based on the rapid development of science and technology. Academic knowledge is growing quickly. Knowledge plays a vital role in ensuring individuals' competitiveness and in society's development. The issue of social justice in education is becoming relevant, and greater educational equality begins with the issue of knowledge. All students have equal rights to knowledge. But – to what kind of knowledge?

Michael Young, noting that in many countries the education policy neglects the question of what kind of knowledge today's student needs, created the concept of "Powerful knowledge," the idea of which is based on authors of the sociology of education such as Durkheim, Bernstein, Bourdieu works. Powerful knowledge is also the basis of the third model of the future of school programs described by Young and Muller, with emphasis on high school.

This work aims to perform a systematic literature analysis and contextual analysis of the concept of powerful knowledge. Research question – How does the concept of "Powerful knowledge" correspond to the needs of modern education? Since 2009, this concept has been developing cumulatively, along with initiating discussions and research among scientists regarding the problems of this time in schools and school programs. By analyzing the works of Young, Muller, and Lambert, and getting acquainted with other authors who developed, and added to the concept (Wheelahan, Hordern, Monton, Deng, Niemala, etc.), the definition and characteristics of powerful knowledge have been discovered, scientists' thoughts on what makes knowledge powerful have been gathered, along with understanding how to get them, what place they could have in school programs, how it is consistent with current events in education today. The study found the relevance of the concept to the demands of the twenty-first century and contributed to stimulating discussions on the quality of education.

**Keywords:** *education, equality powerful knowledge, quality, school programs*

## Introduction

In the past decade, discussions on what knowledge is in the twenty-first century, when and why it is acquired, and what can ensure the sustainable development of education have become relevant among education researchers, politicians, and entrepreneurs in

a knowledge society. The existing crisis in the education sector, in which what is learned in schools no longer meets society's needs, necessitates urgent solutions. It is worth noting that in the early 2000s, national surveys on education research and development showed a low level of investment in education research as well as research capacity, particularly in quantitative research. They also confirmed the weak links among research, policy, and innovation in the system (OECD, Who Cares about Using Education Research in Policy and Practice Strengthening Research Engagement, 2022).

This study reflects on the essence of a new concept in education called “Powerful Knowledge” (PK) and its relevance to modern views on education quality, and proposes a scheme that shows the concept's location in different contexts in a complex system that reflects its diversity and dimensions.

The assessment of the current situation in education and its development is analyzed in the report “Rethinking Our Common Future,” prepared by the International Commission for the Futures of Education (ICFE) in November 2021. This is a new social contract in education that analyzes the role of education globally, which is undoubtedly influenced by various global trends, such as geopolitical unrest, environmental degradation, and climate change. The report indicates that the changing patterns of human mobility and the pace of scientific and technological innovation also impacts education. Therefore, the focus has shifted from the goal of societal well-being to the survival of society and humanity. The authors of the report believe that the power of education lies in its ability to connect us with the world and each other, take us beyond the familiar, and offer us new opportunities. Education promotes understanding and creates opportunities to ensure social inclusion, economic justice, and environmental sustainability (ICFE, 2021). The report emphasized digital and scientific literacy and human values.

Michael Young and his colleagues David Lambert and Johan Muller developed the concept of PK (Young, 2008; Young & Lambert, 2014), which can be seen as a way to ensure scientific proficiency and promote values such as equality and equal access to knowledge. This concept also applies to the middle education stage. The authors' envisioned future scenario for education (Young & Muller, 2010) predicts that the “best” knowledge of each discipline is at the center of the curriculum, learned through subjects that allow for a deeper understanding of the subject matter, epistemologically high-quality knowledge, and new opportunities for thinking and analyzing various situations, perspectives, and debates in the field. Access to PK leads to the acquisition of skills necessary for the 21st century: communication, logical thinking, critical thinking, imagination, creativity, and so on (Deng, 2020; Calgren, 2020). Theoretical and practical research conducted by scientists and researchers also supports the notion that PK can achieve these goals (Gericke et al., 2018).

In the new education agreement with society, it is also stated that it is time to create a new set of dynamics that supports a strong knowledge-based approach while not abandoning what has been gained in project work and problem-solving approaches, such as closely examining existing challenges and developing meaningful curriculum content for learners (ICFE, 2021). References to the fact that disciplinary knowledge is a reflection of

human wisdom, ways of thinking, and attitudes (Dewey, 1966) are increasingly common in the education space, as well as the recognition that competence is an economic, not an educational concept, whose origins lie in the field of human resource management (Deng, 2021).

Education sociologists, including Young, have raised the question of what knowledge is available to students in school and who has the right to decide on it (Young, 2008). Given that one of the goals of modern society is to create an inclusive society, equal opportunities for quality education must be considered. Young, like-minded individuals believe that curricula should be based on knowledge, which makes it possible to provide equal opportunities for all. The PK concepts include both principles for developing educational programs and a socio-epistemic view of knowledge, which means equal access to knowledge for everyone and qualitative, epistemically deep knowledge, which, in turn, provides the basis for professional judgments and actions necessary for the development of society.

### **The theoretical basis of the concept**

The term “Powerful Knowledge” was first used by Wheelahan in 2007 to analyze professional education, where the introduction of competency training in the curriculum due to pressure from market economics made knowledge a secondary issue. (Wheelahan, 2007). Michael Young developed and theorized this concept using PK as a response to three trends in education and society. First, social constructivists question the truth and objectivity of knowledge based on beliefs and theories. Second, schools focus too much on providing well-being, leaving knowledge a secondary issue in secondary education. Third, there is a high concentration of scientists connecting science and politics (Young & Muller, 2016). This reduces the scope of knowledge in school programs. PK is a response to policies seeking to narrow educational activities, marginalize knowledge, and efficiency.

As this concept gained acceptance, it became popular among teachers and researchers. Most acknowledged that the proposed term and idea evoke positive emotions and create a sense that one would definitely want to attain. However, there were and still are skeptics who disagree and seek various counterarguments. This has led to intense discussions among scientists who have benefited from the concept. As the concept lives, it evolves, and becomes more elaborately developed and unambiguously understandable. Discussions in the context of the concept also promote the analysis of modern educational goals and content, as well as the development of new proposals.

The authors of this concept use the boundary principle to explain that PK indicates the boundary between knowledge that is easily acquired in everyday life and that acquired in school, the boundary between specialized knowledge and the best specialized knowledge, and the boundary between scientific disciplines and subjects in the processes of knowledge creation and transmission (Young & Muller, 2013). They refer to Pierre Bourdieu’s theory of cultural fields to justify this boundary marking, which explains the use of social capital as a growth resource for individuals – the greater your social capital, the greater your potential opportunities (Bourdieu, 1986). Therefore, the school

should be a compensatory environment that is not based on students' existing social capital but provides equal opportunities for everyone. The authors of this concept find a basis for explaining the boundaries of everyday and school knowledge in Lev Vygotsky's (1987) sociocultural theory (cultural-historical psychology), which expresses the idea that specialization or the separation of knowledge from experience is the basis of human development. The school must provide the opportunity to "go beyond" the previous experience, to open up new fields of knowledge, which in turn allows expanding the previous experience. The ideas behind Young's concept also refer to Emile Durkheim's sociology of knowledge, where one of the ideas expresses that each person perceives the world differently and is determined by their thoughts and experiences, and that everyone differentiates knowledge depending on how they see the reality of the world and how they intuitively feel it. Everyone also intuitively feels that some knowledge is "better" than others, from different perspectives, epistemologically, morally, and ethically (Durkheim, 1956). This idea plays a decisive role in determining what is included in the curriculum. As mentioned earlier, Young's educational future scenario three is based on "powerful knowledge," the "best" knowledge in each field. Hence, there is a need for specialist discussions in each field to determine what is best at a particular time and place. Such knowledge identification and regular reviews ensure modern education and the opportunity to create a logical connection with real-life and solvable questions.

Based on Basil Bernstein's insights into the differentiation of knowledge, the authors of the PK concept explain two boundaries: one between subjects, and the other between everyday knowledge and knowledge acquired in school (Bernstein, 2000). This approach also underlies the structure of the school curriculum in the authors' developed scenario for the future of education, where learning is initially organized by subject, sequentially and systematically acquiring the best specialized knowledge in each subject, and then solving creative, research-based tasks. The boundaries were compiled to cross them later.

However, as noted by the scientist Mikko A. Niemelä, the discussion about PK is more focused on the question of maintaining boundaries, and what crossing boundaries actually means (Niemelä, 2020). This concept is still not theoretically justified. (Niemelä, 2020).

### **Formation and essence of powerful knowledge**

A content analysis of the theoretical literature on strengthening knowledge allows us to answer several important questions related to the understanding of this concept: How are they formed? What characterizes the features of this knowledge? How have they been implemented in schools? What do they offer to students?

Strengthening knowledge is formed in the formal environment of each discipline's scientists (institutes, laboratories, etc.), where it is regularly reviewed and improved. However, as emphasized by the social realist approach to knowledge (Young, 2008), at a specific time, they are the best and most reliable at recognizing the dynamic nature of knowledge. This aspect of strengthening knowledge – the connection between the content and structure of science and school programs (division by subject corresponding to scientific disciplines) – is the basis for scientific discussions (Niemelä, 2020; Horden et al., 2021)

on the importance of disciplinary consciousness – understanding of the field, discipline awareness in modern times (Eaglestone, 2020). The fact that strengthening knowledge is specialized is the basis for ensuring that a student’s knowledge has a high epistemic quality during the quality transformation process in school (Hudson, 2018). Epistemic quality is a way of formulating aspects that we understand through strong knowledge at the class level. Researchers in the Knowledge and Quality across School Subjects and Teacher Education (KOSS) network continue to work on improving subjects’ didactics in accordance with the implementation of strengthening knowledge and seeking reasonable opportunities for integrating knowledge at the level of curriculum (Hudson et al., 2023).

Based on a systematic and content analysis of the theoretical literature on strengthening knowledge, the author summarized the PK characteristics indicated by the concept authors and the characteristics of chronological formation (Table 1). However, it should be noted that the knowledge that exhibits PK characteristics at a particular point in time may not have these characteristics later. Therefore, it was not possible to create a consistent list of PK. Knowledge must be regularly reviewed by subject specialists and the best knowledge must be selected for inclusion in school curricula.

**Table 1** Characteristics of powerful knowledge

<b>Characteristics of powerful knowledge</b>	<b>Literature</b>
Provides more reliable explanations and new ways of thinking about the world and language, in order to engage in political, moral, and other types of debates.	Young, 2008, p. 14
Separated from everyday knowledge, systematic and specialized.	Young, 2009
Disciplinary knowledge; is distinct from the self-evident knowledge gained through everyday experience.	Young & Muller, 2010
Has emerged in formal communities of specialists in specific fields.	Young & Muller, 2010, p. 14
Specialized, context-independent knowledge undergoes codification, systematization, and systematic review within specialized communities.	Young & Muller, 2013
Dynamic in nature; it evolves and changes with the development of society, and, as Jung says, has a “seeker of truth” form.	Young, 2013
Gains objectivity by using various methodologies to generate and confirm knowledge claims with concepts that are “systematically related to each other in groups.”	Young & Lambert, 2014, p. 75
Knowledge is “powerful” if it predicts, if it explains, if it allows to predict alternatives.”	Young & Lambert, 2014, p. 74
Emphasizes the objective nature of knowledge, a reality that is free from values.	Young & Muller, 2016, p. 116
The acquisition of such knowledge allows us to go beyond our specific experience and “predict alternatives and new opportunities.”	Muller & Young, 2019
Includes creativity and the possibility to expand into other contexts, which gives the potential to create something new, deepens understanding of knowledge formation in the corresponding field of science, and provides an idea of the structure of the subject.	Muller & Young, 2019

As mentioned previously, the concept develops cumulatively, providing authors with answers to their opponents' questions and comments on supporters' understanding and practices. As Young acknowledges, this aspect also has its negative sides; as freely interpreted, misunderstandings have arisen, which have somewhat hindered the qualitative implementation of this concept in practice (Chapman, 2021). Another topic that scientists discuss in relation to PK is whether this concept applies to all disciplines or only to science, technology, engineering and mathematics (STEM). Young and his colleagues believed that this concept was applicable to all subjects, although its expression may vary. Young and Muller distinguished between two broad types of disciplinary knowledge: natural sciences and social/humanistic sciences. In natural sciences, knowledge develops "cumulatively and progressively, incorporating earlier formulations into later ones," whereas in social and humanistic sciences, knowledge accumulates "not by one enveloping the other, but by adding parallel theories" (Young & Muller, 2013). The differences lie in the aspect of knowledge formation, which suggests the need for the development of didactics in various subjects. However, what students are capable of when acquiring such knowledge is the ability to understand the relationship between different concepts within one field as well as between fields, to participate qualitatively in discussions on important issues in the field, using appropriate vocabulary and principles of understanding the field, creating new knowledge, and solving non-standard situations. Active citizens are involved in the sustainable development of society.

Strengthening knowledge is not a new division of knowledge, but rather a new perspective on knowledge that encompasses multiple fields and directions. The author of this paper has created a diagram that reveals the place of PK in existing systems and demonstrates that concepts are developed by considering multiple directions and fields related to educational quality (Figure 1). One of these systems illustrates the place of PK in knowledge formation and transmission processes. It arises in formal scientific environments and specific scientific disciplines. Disciplinary specialists evaluate the "best" knowledge that can be included in school programs. By mastering PK, students understand that the knowledge of one discipline is formed, and they understand the connection between the concepts of one discipline; they are then able to see the connection with other disciplines, transcend the boundaries of one discipline, generalize, and provide a global view that, in turn, provides opportunities for creative thinking, creating new knowledge and solutions. The second system reflects how PK was implemented during the educational process. Initially, educational policymakers decide upon the educational goals, where PK, in this case, is the understanding that socially active citizens of society who can solve non-standard situations and seek innovative solutions can be educated with educational programs divided into subjects, based on the knowledge that Young called the third scenario of the future of education. Understanding is reflected in decisions. In the classroom, these "best" programs' knowledge is recontextualized or "translated" to make it understandable and practical for the learning subject's needs and goals. The process of recontextualization, to adapt the discipline's knowledge to the practical needs and goals of the learning subject, is the main implementation of the teacher's experience-dependent

curriculum. The process of recontextualization undoubtedly requires knowledge selection, acquisition, and transformation in accordance with the principles created and maintained in practice (Hordern, 2021). The third system that includes PK is the sociology of education. PK is based on a social realist understanding of knowledge, which, as mentioned, is the view that knowledge is socially changeable, dynamic, but true, reliable, and “best” available in a particular scientific discipline at a particular time in a real situation. Knowledge incorporated into educational programs is available to everyone, regardless of the student’s place of residence, social status, nationality, skin color, etc. Thereby, equality in obtaining quality education increases.

Summarizing the aforementioned, the author offers a definition for PK:

- Powerful knowledge is structured, epistemic, dynamic, and specialized knowledge created and transmitted in an academic environment, which, when recontextualized in the classroom, provides opportunities for interpretation and generalization, helps to understand the natural and social world, and enables individuals to become productive citizens in global society.

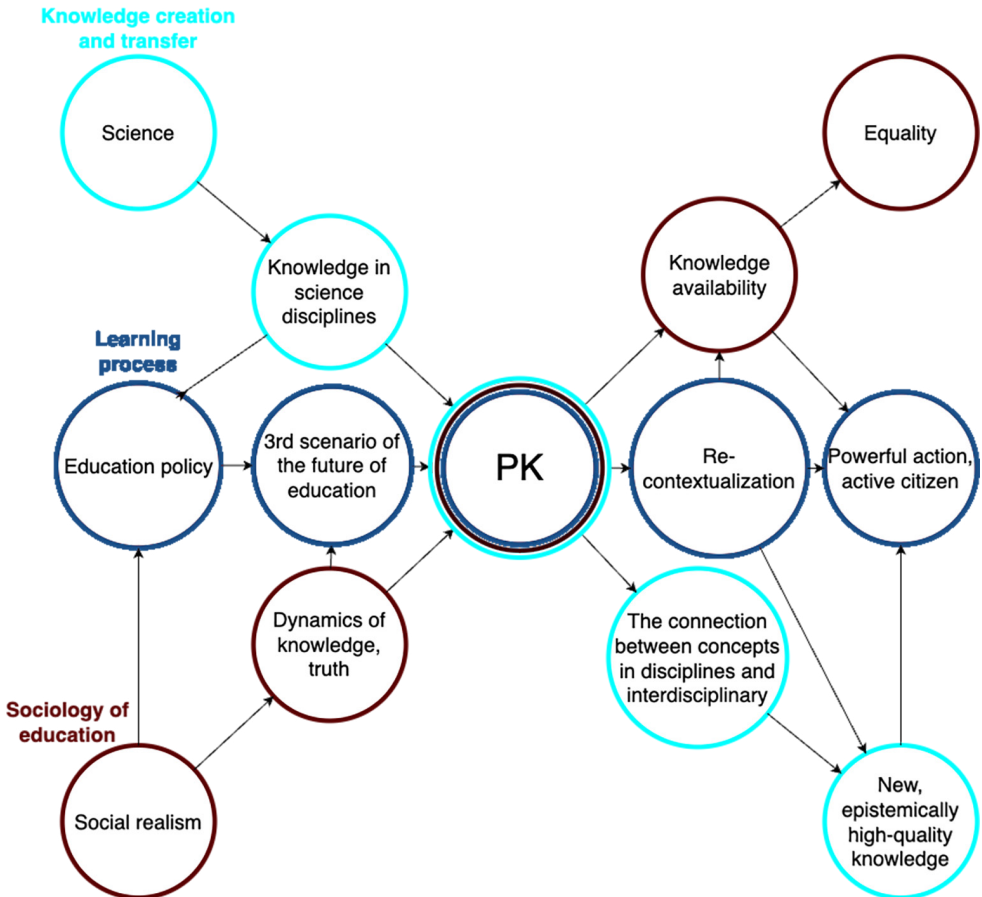


Figure 1 The place of PK in complex systems

## The concept of powerful knowledge is the basis of contemporary research and discussions

Initially, when presenting the third scenario of the future of education, Young and his colleagues believed that the content included in educational programs, where PK is at the center, should be separated from pedagogy. However, in scientific discussions, it has been concluded that acquiring PK is possible only by using pedagogy, including high-quality, epistemic knowledge recontextualization and transformation in the classroom (Deng, 2021). The key is to transform disciplinary knowledge into educational purposes, curricula, and teaching to promote human empowerment (Deng, 2020). This has led to the development of modern didactics for teaching subjects (Hudson et al., 2023). Research within the KOSS network on PK in school subjects, epistemic quality, and knowledge transformation, has identified positive student outcomes discussed in symposia and summarized in the book “International perspectives on knowledge and curriculum,” 2022, published by Bloomsbury Publishing. ([ ed.] Gericke, 2022). In doctoral dissertations, various issues are researched: the development of integrated educational programs based on PK – Knowledge-based curriculum integration (Niemelä, 2022), how to ensure equality in classrooms with different social statuses – Developing pupil understanding of school-subject knowledge: an exploratory study of the role of discourse in whole-class teacher-pupil interaction during English literature lessons (Smith, 2018); Ensuring Meaningful Access to Powerful Knowledge to Enable Success of Students from Rural Areas in the Field of Science in Higher Education: A Decolonial Perspective (Madondo, 2023).

The PK developed by Young and his colleagues is relevant to modern educational demands, prompting scientific discussions and facilitating the creation of modern curricula and didactics for teaching subjects, as well as the professional development of teachers, understanding of PK pedagogy, and implementation opportunities.

However, several aspects of this concept remain unclear. Three main directions are identified. One of them is regarding the term “powerful knowledge” itself – whether the term reveals anything new about knowledge and how well-founded it is. Young’s opponent, John White’s opinion regarding ‘powerful knowledge’ is quite negative; he argues that it is just an emotionally appealing phrase for the same specialized knowledge (White, 2018). Some scholars offer their own terms: “living knowledge” (Ivinson, 2020), and “more usable and effective knowledge” (Wrigley, 2018). The second direction of discussion is whether knowledge should be the main focus of school curricula. John White advocates for the importance of a child’s well-being and points to the need for a child-centered and holistic approach in school curricula, while also acknowledging that practical skills, which will be necessary for future employees, as well as other forms of knowledge and cross-cutting skills, should not be overlooked. (White, 2013) One of the most debated issues is whether PK is possible in all subjects. Claims have been made that, given that Young is a chemist by primary education, his understanding of how



knowledge is formed is more STEM-oriented and has influenced the development of the concept (Eaglestone, 2020).

All these questions contribute to the dialogue on the modern, high-quality, and sustainable development of education.

## Conclusions

- Powerful knowledge is structured, epistemic, dynamic, and specialized knowledge created and transmitted in an academic environment that, when recontextualized in the classroom, provides opportunities for interpretation and generalization, helps to understand the natural and social world, and enables individuals to become productive citizens in the global community.
- The concept of PK is based on a social realist understanding of knowledge, which recognizes the social nature of knowledge production but maintains that in a particular time and field, the “best knowledge” is true and reliable.
- Powerful knowledge can be explained using the boundary principle: 1) boundaries between every day and academic knowledge, 2) the boundaries between different subjects.
- Powerful knowledge is both a principle of educational programs and a socioepistemic concept that includes an understanding of the place of knowledge in educational programs, the quality of knowledge, and the belief that everyone should have equal access to this knowledge.
- Scientists in their research and discussions on PK address significant issues, such as equality, which determines what knowledge will be taught in schools and who will have access to it; the importance of changing understanding and working on the theories of educational programs; didactics of different subjects; and the significance of teachers’ education and attitudes–PK pedagogy.

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### About Author

**Gunita Elksne**, Master in Pedagogy. The topic of the research is “Interactions between the values of teenagers and their parents. I am an applicant for a scientific degree. I work at the Faculty of Pedagogy, Psychology, and Arts at the University of Latvia. This work is related to master’s- and bachelor’s-level students. I lead the course “Philosophy of Education” for master’s degree, and “Classroom management,” “Organization of the educational process in primary school” and “Research in education” for bachelor’s degree.