

## PHYSICAL EDUCATION

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# A descriptive study for integrating a theoretical-conceptual framework for teaching martial arts

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**Key words:** martial arts, sport combat, higher education, physical education

### Abstract

**Background.** Teaching education for martial arts teachers faces tensions stemming from teaching knowledge in the field of professional practice, that is, the martial arts school. Therefore models aimed at subsidizing teachers' education in their pedagogical practice become a priority, aiming to overcome the problems related to martial arts teaching in school physical education classes.

**Problem and aim.** This study aimed to integrate a theoretical-conceptual framework for teaching martial arts for prospective teachers in undergraduate courses.

**Methods.** This is a paper that, based on the literature, aims to investigate, discuss, reflect, and give an opinion about the phenomenon under analysis, supported by different theoretical bases from the models aimed at teaching education by Shulman [1986; 1987; 1992], Shulman and Shulman [2004], and their developments from authors in various fields of knowledge, with emphasis on the teaching of martial arts.

**Results.** This study highlighted the themes involving teaching, specifically the formal knowledge required for teaching. Considering this, we could direct the discussion to its struggles, thus contributing to the emerging debate around its teaching in teacher education. In the theoretical basis that underlies the investigation, the pedagogical content knowledge (PCK) as part of the teaching and learning process and a priority in it, stands out. Through the development of the PCK, integrated with the other components of the knowledge base, it was possible to understand the complexity of professional performance in teaching martial arts and to propose a model that can contribute to the teaching and learning process of martial arts.

**Conclusion.** The knowledge base for teaching martial arts is a fundamental model so that the problems regarding lack of knowledge on this subject, discussed only from the technical point of view in the school environment, can be overcome by understanding and transforming the contents addressed by the teacher trainer in the context of action in the classroom (school physical education).

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## Introduction

Investigations into formal and practical teacher knowledge have extended over decades as researchers have presented studies to understand how teachers teach and learn [Fenstermacher 1994; Grossman *et al.* 2005; Grossman, Thompson 2008]. Meanwhile, Schon [1983] followed the investigation line into teachers' practical knowledge, their ways of thinking, and how they reflect upon their teaching performance, calling it epistemology of practice. On the other hand, focused on formal teaching knowledge, Shulman [1986; 1987] produced two precursor studies on the knowledge needed for teaching—i.e., the knowledge base—, stressing a new construct: the pedagogical content knowledge (PCK), which is essential for the content to be understood and transformed by the teacher from a teaching and learning perspective and for making content learning accessible to students.

Based on scientific advances in the first studies regarding teaching knowledge, authors have investigated professors as trainers of prospective teachers with the prerogative of discussing which knowledge is essential to effective teaching and how it can help prospective teachers in their pedagogical practice [Nono, Mizukami 2002; Shulman, Shulman 2004; Marcon 2013]. Thus, teacher education and empirical studies on professors have been investigating emerging issues that affect teaching performance, namely: curriculum, didactics, technology, assessment, among others [Shulman 1992; Canever 2014; Moreira *et al.* 2020; Sinclair, Webb 2020; Bayerlein *et al.* 2021; Beighton 2021].

In line with physical education, investigations with physical education professors have been limited to the PCK component, as well as to movement as content knowledge, specific to the area [Siedentop 2002; Backman *et al.* 2019; Backman, Barker 2020]. Movement as content knowledge is directly linked to PCK, based on rules, history, techniques, and tactics of body practices. Moreover, this knowledge is widely conceptualized (based on behavior and constructivist epistemologies) and encompasses various body practices from their similarities and specificities [Backman *et al.* 2019; Backman *et al.* 2021].

On the other hand, researchers have presented some concerns about professors' teaching process based on movement as content knowledge. The justification is centered on ways of instructing or even assessing through movement alone, reducing the teaching and the learning processes [Backman *et al.* 2019; Backman, Barker 2020].

Therefore, studies are needed to discuss movement as content knowledge in physical education, linked to PCK and to other components of the Shulman's knowledge base [1986; 1987], transversally, and that aim to instigate professors to broaden, associate, contextualize, and diversify their pedagogical practice, so that teaching can be effective and student-oriented [Backman *et*

*al.* 2019; Backman, Barker 2020]. However, from the base components, professors can also contribute to the transformation and construction of prospective teachers' base and help their performance in the school during pedagogical practices of body movement [Marcon 2013].

Some body practices are still incipient, such as martial arts, despite studies based on models focused on physical education body practices, centered on team sports and, to some extent, evident with a certain abundance [Graca 1997; Siedentop 2002; Grace, Mosque 2009; Backman *et al.* 2019].

Martial arts are body practices with modest presence in physical education in Brazilian schools [Brazil 1998; 2018], as well as in the curricula of physical education undergraduate courses [Pereira 2018]. Implications for its teaching are notable in both contexts, that is, the education space (higher education) and the professional intervention space (school). In school, studies point to the absence of martial arts in the curriculum, or to teachers' practices reduced to teaching decontextualized techniques [Pereira *et al.* 2017; Pereira *et al.* 2020; Pereira *et al.* 2021]. In undergraduate courses, professors end up presenting a teaching limited to movements (techniques), with few mentions to the context of the prospective teachers' performance, which certainly ends up contributing to the distancing and decontextualization of practices in the school [Gomes 2014; Rufino, Darido 2015].

The lack of studies on physical education professors in undergraduate courses who teach martial arts subjects represents a gap in the academic production on the models of teachers' teaching knowledge, and an alternative is to propose discussions and adaptations of Shulman's models [1986; 1987; 1992] for teaching martial arts.

Therefore, and based on the lack of studies on martial arts, this study aimed to integrate a theoretical-conceptual framework for teaching martial arts for prospective teachers in undergraduate courses based on Shulman and Shulman [2004] and its developments from authors in several areas of knowledge, with emphasis on the area of physical education. Thus, papers, theses, and dissertations available on the Internet were consulted, specifically on indexing databases and on both Brazilian and international online journals, as well as in printed material regarding the knowledge base for teaching and the PCK.

## Materials and methods

This is a descriptive, qualitative, and theoretical study aimed at investigating formal knowledge for teaching. Theoretical essays are fundamental both to present an investigation through the literature, and to discuss, reflect, and opine on the investigated phenomenon, supported by different theoretical bases [Shenton 2004].

The study, based on Shulman's theoretical and practical models [1986; 1987] and Shulman and Shulman [2004], explored investigations focused on the developments and transformations of knowledge in the field of Physical Education, limited to teaching martial arts.

The elaboration of the theoretical framework made it possible to dialogue with the knowledge base for teaching and the PCK as a support for teaching and for the formulation of a conceptual model for teaching martial arts, aiming at professors who teach martial arts. In the theoretical framework, the references adopted were studies concerning formal knowledge for teaching; the PCK construct; research on university professors; and the content and disciplines of martial arts in physical education undergraduate courses. As consultation sources, books, papers, theses, and dissertations available in print, in indexing databases, and in online journals were used.

## Results and discussion

### *Knowledge base for teaching: reflections from the PCK*

Investigations into teaching knowledge became frequent in the mid-1980s, with strong influence from researchers concerned with initial and continuing education [Elbaz 1983; Schon 1983; Connelly, Clandinin 1985; Shulman 1986]. Thus, Shulman presented his first study to foster discussion on the perspective of teachers' professional knowledge and systematized three components of teaching basis, namely content knowledge, curriculum knowledge, and PCK [Shulman 1986].

Shulman considered these three interdependent types of knowledge as the way in which a teacher would make the subject understandable to be taught to students. Thus, the teacher should know the subject, find appropriate teaching strategies, and provide the experience through which the student would learn [Shulman 1986].

After the first interpretations of the initial model, Shulman expanded the knowledge base for teaching into seven types of knowledge, namely: content knowledge (what will be taught); curriculum knowledge (the experience the student will have from a systematized teaching program); knowledge of educational contexts (micro- environments such as the classroom, macro environments such as the school and the university, and also indirectly influencing environments such as public educational funding programs); knowledge of learners and their characteristics (their individual characteristics); knowledge of educational ends, purposes, and values, and their philosophical and historical ground (focused on history, philosophy, and educational legislation); general pedagogical knowledge (organization of materials and classroom management); and PCK, which Shulman conceptualized as an amalgam of content and pedagogy, whose teacher's understanding is essential to teaching [Shulman 1987].

Furthermore, PCK presents a relationship between the content to be taught by the teacher and the content to be learned in a way that is accessible and understandable to the student [Shulman 1987]. PCK then reports the understanding of the specific content that will be taught in alignment with the need to be developed for students [Grossman 1990].

In this scenario, the teacher must understand the content to be instructed and also know if the students have a comprehension of what has been and is being taught, enabling ways in which learning can be achieved. Thus, PCK will contemplate the teacher's conception of the goals of a specific content to be structured so that it can be taught [Grossman 1990].

Note that, from Shulman's early studies [1986; 1987], researchers have focused on reflecting, criticizing, and adapting the knowledge model for teaching, as well as the PCK in various fields of knowledge [Grossman 1990; Graca 1997; Grossman *et al.* 2005; Loughran *et al.* 2008; Canever 2014]. Empirical studies have been developed with basic education, higher education, and prospective teachers from the original models and also from their adaptations [Moreira *et al.* 2020; Sinclair, Webb 2020; Bayerlein *et al.* 2021; Backman *et al.* 2021; Beighton 2021].

As research on the knowledge base for teaching and PCK has progressed, authors have adapted and created new models from Shulman's studies [1986; 1987]. Grossman [1990] presented a model of the knowledge base for teaching consisting of four areas, general pedagogical knowledge, subject matter knowledge, PCK, and context knowledge. PCK encompasses four components related to content and learner constraints: what to teach; teach to whom (knowledge of purposes for teaching content, student understanding or non-understanding, curriculum, and teaching strategies); general pedagogical knowledge (with the following components: students, learning, classroom management, curriculum and instruction), considered the core area that interacts with and is influenced by other areas; knowledge of the context (with the components: students and their environments, the community, and the school); and, finally, a modified version of the content knowledge proposed by Shulman [1987], the subject matter knowledge (with the components: the content and the syntactic and substantive structures) which, according to the author, better elucidates the understanding about the forms of knowledge so that the teacher has organization and knows why they are teaching a certain subject.

Other adaptations of Shulman's initial model and new components were also introduced based on the current needs of teaching and learning processes, so authors introduced a new component, called Technological Pedagogical Content Knowledge. This model focuses on technologies as educational strategies, where teachers must rely on technological knowledge, as well as use PCK, so that they can make teaching accessible and

understandable to students based on the proposed content [Marcelo, Yot -Dominguez 2019; Wiens *et al.* 2020].

Regarding physical education, studies have relied on Shulman's [1986; 1987] early models regarding movement as content knowledge [Siedentop 2002; Ward *et al.* 2012; Ward, Ayvazo 2016]. Movement from body practices is what differentiates physical education from other fields of knowledge, by teaching based on concepts and attitudes in line with the procedural dimension [Meier 2021].

Movement as content knowledge in physical education should also be taught from the social context in which the student is inserted, through pedagogies that foster critical sense and provide an opportunity for meaningful knowledge [Backman *et al.* 2019]. Teachers must also evoke other background knowledge in line with PCK so that they can interpret students' actions and reactions when performing the tasks; students' understanding or non-understanding of the content before, during, and after teaching, identifying errors and successes; and assessment techniques that can be a link between teaching and learning [Ward *et al.* 2012; Backman *et al.* 2021].

Thus, the teacher must articulate PCK in order to have an understanding of the content to be taught and design the progression of the movement tasks (content knowledge); from then on, insert questioning and feedback to evaluate students' understanding of the content taught and whether it was learned by the students in a conceptual and procedural, or even attitudinal way. Additionally, the attitudinal aspect, focused on values, can also be combined with other aspects of PCK and content knowledge, so the teacher can provide a teaching totally centered on students in a way that best suits their needs [Backman *et al.* 2019].

A knowledge base model for teaching teachers, directed to the corporal practices of physical education, is fundamental for teaching and learning processes to be carried out in a way that the teacher understands and organizes the selection of content and the strategies to teach. Thus, the contents can be instructed from the theme to be addressed [Backman, Barker 2020].

Models for teaching team sports based on constructivist pedagogies [Graca, Mesquita 2009], related to basic knowledge—especially PCK and movement as content knowledge—have been standing out in the school environment and also in physical education teacher education. To this end, it still requires that physical education teacher education pay attention to other body practices and also present models consistent with teacher education [Marcon 2013; Pereira *et al.* 2021].

Regarding higher education professors in undergraduate physical education courses, knowledge models for teaching are essential to selecting optimal content for the performance of future teachers in their work [Backman *et al.* 2019]. Professors must understand each component of the base and especially the PCK, aiming at organization and instruction in their discipline [Marcon 2013], thereby

allowing for consolidated training grounded in the knowledge of professional teaching intervention.

Undergraduate courses in physical education educate future teachers who will have to theme specific content in the school environment (body practices of movement), based on the perspective of movement as content knowledge [Marcon 2013; Backman *et al.* 2019]. However, many contents are impacted by the way a teacher addresses the instruction, from constraints focused on the curriculum and pedagogical aspects to assessment [Graca 1997], as well as the differences in reality, such as different contexts of teachers' social lives.

Despite Shulman's encouragement to discuss teaching knowledge from the knowledge base, and specifically from PCK, teachers in basic education still present aforementioned weaknesses in the teaching and learning processes inserted in their initial education. Additionally, professors must understand and select content that can contribute to prospective teachers in their pedagogical practice, especially in the construction and transformation of their knowledge base for teaching, as well as their PCK. Thus, they will understand how the curriculum can contribute to student performance (important experiences for prospective teachers to understand the subject matter), pedagogy (strategies to be used in classes), and finally assessment (formative and that will regulate learning) [Grossman, Thompson 2008].

#### *Reflections on a knowledge base for teaching martial arts*

When mentioning body practice of movement as martial arts — as one of the macro contents of school physical education — the paradigms related to its teaching can be discussed. Martial arts as content are still little addressed by teachers in the school environment, being justified by the lack of disciplines aimed at teaching pedagogical practice and experiences in higher education [Gomes, Avelar Rosa 2012; Pereira *et al.* 2021].

When martial arts are addressed, teachers usually do not address its diversity, being performed through decontextualized practices in school, prioritizing only motor gestures (techniques) [Pereira *et al.* 2021]. Thus, it is possible to identify how knowledge acquired by teachers in their initial education still permeates two antagonistic poles: on the one hand, the content is not thematized and, on the other hand, the content is thematized in a decontextualized manner [Gomes 2014; Johnson, Ha 2015; Rufino, Darido 2015; Kusnierz *et al.* 2017].

Martial arts or combat sports disciplines are part of the curricula of higher education institutions with undergraduate courses in physical education, from mandatory subjects to optional ones [Pereira 2018]. In fact, martial arts content is a theme to be developed in the school environment, both as macro content and as part of combat sports, according to educational guidelines [Brazil 1998; 2018].

Based on these guidelines, higher education professors should understand the pedagogical treatment of

martial arts content in its diversity, providing prospective teachers with a supported, coherent, and confident knowledge to be discussed in their pedagogical practices. The implication is focused on how this content is taught during martial arts disciplines, as higher education professors have not made the content understandable and applicable to future teachers [Gomes 2014; Rufino, Darido 2015; Bowman 2017].

Thus, professors should not only know the movement of martial arts as content knowledge, which restricts the diversity of the content. Professors of martial arts disciplines should not only focus on technical aspects but also expand the knowledge for all components of the knowledge base so that the content can be understandable to the prospective teacher, both in an individual and interdisciplinary sense. Exploring the knowledge base embracing martial arts can be a way to overcome this restriction and other problems associated with it; therefore, the professor of martial arts disciplines should provide content that is applicable, understandable, and mainly within the reach of the prospective teacher.

Figure 1 represents the teaching base knowledge proposed by Shulman [1987] and also elucidates transversally the movement knowledge. The same representation can be assigned to martial arts teaching in higher education.

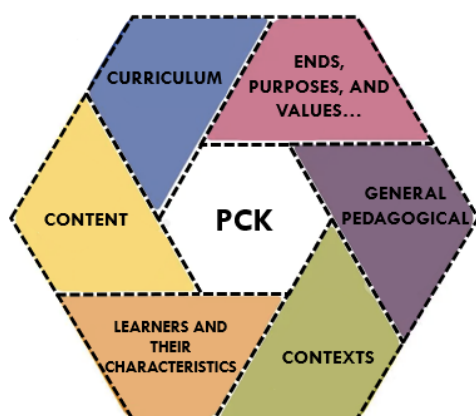


Figure 1. Knowledge base for teaching martial arts.

This representation of the knowledge base features the model proposed by Shulman [1987], inserting the PCK at the center. The dashed lines represent the teacher moving along knowledge, activating it whenever necessary, since it is interconnected and can be accessed from the spaces between the lines.

Martial arts movement can be represented in each knowledge, so it can manifest itself transversally in each component. When considering the specificity of techniques, of a procedural nature, professors must understand and transform it so that it can become understandable for prospective teachers to be able to teach in their physical education classes. Furthermore, the movements must be based on pedagogies that contemplate teaching in the school environment, evoking other knowledge to be supported before, during, and after the instruction of contents.

In a way, martial arts professors, based on martial arts movements as content knowledge, should rely on PCK so that the content becomes understandable and meaningful to the students, and should also crosscut and trigger other basic knowledge, allowing a holistic learning of the student.

Professors, based on content knowledge, should select general and specific content of martial arts, of conceptual, attitudinal, and procedural nature, and; the curricular knowledge should be focused on the experiences that the prospective teacher will go through, based on the systematization and organization of the contents to be addressed; by knowing the contexts, professors, besides aiming at their classroom, should also aim at the contexts of the prospective teacher's performance, focusing on the school; the knowledge of the students (in this case future teachers), martial arts professor should know the personal characteristics (limitations and potentialities) of their students, stimulate their creativity and instigate them to be autonomous and make decisions, therefore these prospective teachers can learn how to stimulate their future students during physical education classes; knowledge on the purposes and goals of education: professors should also present educational aspects in their subjects, that is, not only show the educational legislation to students but teach how they can rely on these documents and educational concepts in certain situations during martial arts classes; they should support their students so that they can thematize the content and understand how to insert a martial arts project in the school's pedagogical plan, in addition to being able to justify the purpose of teaching certain content to the students.; and finally, on the general pedagogical knowledge, professors should teach students both how to organize the materials to be used and how to manage the classroom.

Notably professors, in addition to understanding and using the knowledge base for their martial arts classes, should also teach their students to build their own basis and know how to appeal to their knowledge [Shulman 1987; Grossman 1990]. Professors must be clear about their role in teacher education, as well as in how they will instruct a martial arts discipline in which their students can understand the content and thus thematize martial arts in the school.

Corroborating these statements, Shulman and Shulman [2004] present a model focused on teacher education, with features addressing vision, motivation, understanding, practice, reflection, and community. They explain that a talented and concerned teacher must learn these characteristics during the act of teaching.

Thus, a teacher must understand the student's needs from an active teaching and learning process and also be motivated to change and study new possibilities for teaching content. From this change, that is, from having an understanding of what they will teach, Shulman and

Shulman [2004] indicate that the teacher must draw on the knowledge base, not only to have an understanding of the content, but also of the context: the students; the curriculum; the educational ends, purposes, and values; the general pedagogy; and especially the PCK. Once the teacher understands this knowledge, a practice focused on the students' needs can be fulfilled. Teachers must also have an active reflection, so that they can always improve their teaching. Finally, teachers also teach and learn in communities, from continuing education and with peers. Thus, with their epistemological views, beliefs, and the different ways they construct and modify their knowledge bases, they can share with their peers [Shulman, Shulman 2004].

These characteristics of a talented teacher should be presented to prospective teachers, stimulating the content of martial arts, because they can be supported by all these characteristics and, finally, have a teaching and learning community focused on a theme with so many problems, but that can be overcome. And thus, contribute to teaching in the context of school physical education.

In addition to these characteristics, martial arts professors should also focus on the evaluation of prospective teachers, not restricting themselves to the movement (techniques) as content knowledge, but expanding to instruments and techniques that evaluate the learning from the understanding of the content and how they think about teaching martial arts in their pedagogical practice. Shulman [1992] presents teaching cases, which would be a narration from teaching-oriented situations, as a technique for reflecting on teaching practice.

Thus, the prospective teacher can, from the analysis, reflection, and transformation of the teaching case, trigger background knowledge, as well as stimulate the characteristics of a talented teacher to propose solutions individually or with peers [Shulman 1987; 1992; Shulman, Shulman 2004]. Teaching cases are the act of bringing together theoretical and practical aspects developed during formation, with a routine or an unusual situation, aimed at teacher performance [Shulman 1992].

Professors can explore cases with situations focused on misguided teaching strategies, impactful experiences, relationships with students, and events in classroom management, among other possibilities that can be built based on the knowledge base components. Then, they will be able to assess how prospective teachers evoke their background knowledge to solve the proposed situations (reflective questioning) from the elaborate narration [Shulman 1992].

Continuing education for professors can also explore teaching cases, even more so to try to transform teachers' understanding of how to evoke their knowledge base for teaching [Nono, Mizukami 2002]. Thus, instigating martial arts professors to think about topics that need to be transformed and taught to overcome the listed problems becomes essential for content teaching.

The theory and models used with emphasis on the professor of martial arts, in charge of training prospective teachers to teach martial arts in school physical education, becomes an emerging discussion in the educational sphere. The variety of possibilities in teaching martial arts can move from the knowledge base, mainly by the PCK, in line with movements as content knowledge. Moreover, it is important that professors have the characteristics of the talented teacher model, along with the base, to be able to present effective teaching and learning processes. And finally, professors should be able to present instruments for student evaluation from everyday situations of the teacher who teaches martial arts in their pedagogical practice. This way, they will be able to instruct teachers capable of understanding and transforming a subject from the educational needs in the school context they are working in.

## Conclusions

This study highlighted the subjects involving the teaching profession, specifically the formal knowledge for teaching. Considering this, based on the theoretical and practical models developed by Shulman [1986; 1987] and their further developments, according to scientific advances in various areas of knowledge, and in particular in physical education, we could direct the discussion to martial arts, thus contributing to the emerging debate around its teaching in teacher education.

In the theoretical basis that subsidized the investigation, the PCK construct, belonging to the teaching and learning process and a priority in it, stands out. Through the development of the PCK, integrated with the other components of the knowledge base, it was possible to understand the complexity of professional performance in teaching martial arts.

The knowledge base for teaching martial arts is an essential model so that the problems regarding content restriction, discussed only from the technical point of view in the school environment, can be overcome through the understanding and transformation of the contents that the professor has in the context of teachers' performance (school physical education). Being able to have the knowledge base in line with the talented teacher model, thus presenting characteristics aimed at an effective teaching process, is also essential.

Furthermore, the martial arts professor can also contribute to the transformation of the knowledge base and the characteristics of their students, and prospective teachers, providing opportunities for situations focused on the context of action, as well as evaluation techniques (teaching cases) that encourage their students to evoke the necessary knowledge for teaching martial arts in school physical education. Therefore, it is still necessary to continue training that encourages discussions

and explores basic knowledge based on themes of body culture, curriculum of universities, and school physical education, but which is still so little discussed.

The theoretical basis of the presented model, as well as the PCK construct, were fundamental to advance in discussions about teaching. The substantial meaning of the investigation is highlighted by the knowledge of teaching teachers, proposing an epistemological reflection, transformation, and action for teaching struggles in the higher education sphere, as well as reflecting for teaching in the school sphere.

Thus, future studies should conduct empirical investigations with professors of martial arts and prospective teachers on the models presented, as well as investigations based on continuing education of martial arts at the university and school.

## Disclosure statement

The authors declare no conflict of interests.

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### Studium opisowe integracji teoretyczno-koncepcyjnych ram nauczania sztuk walki

**Słowa kluczowe:** sztuki walki, walka sportowa, szkolnictwo wyższe, wychowanie fizyczne

#### Streszczenie

Tło. Kształcenie nauczycieli sztuk walki stoi w obliczu napięć związanych z nauczaniem wiedzy w zakresie praktyki zawodowej, czyli szkoły. Dlatego modele mające na celu dofinansowanie kształcenia nauczycieli w ich praktyce pedagogicznej stają się priorytetem, mającym na celu przezwyciężenie problemów związanych z nauczaniem sztuk walki w szkolnych klasach wychowania fizycznego.

Problem i cel. Niniejsze badanie miało na celu zintegrowanie teoretyczno-koncepcyjnych ram nauczania sztuk walki dla przyszłych nauczycieli na studiach licencjackich.

Metody. Jest to esej, który w oparciu o literaturę ma na celu zbadanie, omówienie, refleksję i wyrażenie opinii na temat analizowanego zjawiska, wspieranego przez różne podstawy teoretyczne z modeli ukierunkowanych na nauczanie edukacji Shulmana oraz ich rozwinięcia od autorów z różnych dziedzin wiedzy, z naciskiem na nauczanie sztuk walki.

Wyniki. Badanie to uwypukliło tematy związane z nauczaniem, a konkretnie z formalną wiedzą na temat nauczania. Biorąc to pod uwagę, mogliśmy skierować dyskusję na jej zmagania, przyczyniając się w ten sposób do pojawiającej się debaty na temat jej nauczania w kształceniu nauczycieli. W teoretycznych podstawach, które wsparły badanie, wyróżnia się baza wiedzy (PCK), należąca do procesu nauczania i uczenia się oraz stanowiąca w nim priorytet. Poprzez rozwój PCK, zintegrowany z innymi komponentami bazy wiedzy, możliwe było zrozumienie złożoności profesjonalnego działania w nauczaniu sztuk walki i zaproponowanie modelu, który może przyczynić się do procesu nauczania i uczenia się sztuk walki.

Wnioski. Baza wiedzy do nauczania sztuk walki jest podstawowym modelem, dzięki któremu problemy związane z brakiem wiedzy na ten temat, omawiane jedynie z technicznego punktu widzenia w środowisku szkolnym, mogą zostać przezwyciężone poprzez zrozumienie i przekształcenie treści poruszanych przez trenera nauczycieli w kontekście działania w klasie (szkolne wychowanie fizyczne).