

**Lea Železnik Mežan<sup>1\*</sup>**

## EXPERIENCES OF UNIVERSITY STUDENTS AND THEIR TEACHER WITH PEER TEACHING: FEEDBACK

## IZKUŠNJE ŠTUDENTOV IN PROFESORICE Z MEDVRSTNIŠKIM POUČEVANJEM: POVRATNE INFORMACIJE

### ABSTRACT

**Background:** Reciprocal style or reciprocal peer teaching is based on peer-assisted learning and promotes learning with the help of peers and positive interdependence. Learners are paired and swap the roles of doer (i.e. tutee) and helper (i.e. tutor) to maximise each other's learning. Reciprocal peer teaching has been shown to be an effective pedagogical model for use in schools. **Purpose:** The aim of this study was to investigate university students' and teacher's experiences of reciprocal peer teaching in athletics, focusing on observation, cooperative skills, and transitions. We were interested in whether prospective teachers and trainers would use this pedagogical model in the future. **Methods:** 36 university students participated in 45 45-minute lessons in athletics using reciprocal peer teaching. Semi-structured group interviews with randomly selected students took place twice for each study group. During the study, the teacher-as-researcher wrote a reflective analysis after each lesson. Data were analysed using thematic analysis and constant comparison. **Results:** Three themes were identified that described the students' and teacher's attitudes towards reciprocal peer teaching: (a) 'Knowledge and observation', (b) 'Interpersonal and small-group skills', and (c) 'Usefulness and transition'. **Discussion and Conclusions:** According to the results, we believe that modern teaching approaches should have a place in pedagogically orientated university courses. For future research, we suggest collecting quantitative data, e.g. on the conceptual learning of university students.

**Keywords:** pedagogical model, reciprocal style, physical education, sport, qualitative methodology

### IZVLEČEK

**Ozadje:** Recipročni stil ali vzajemno vrstniško poučevanje temelji na učenju s pomočjo vrstnikov in spodbuja učenje z medsebojno podporo ter pozitivno soodvisnostjo. Učenci so združeni v pare in izmenjujejo vlogi izvajalca (tj. učenca) in pomočnika (tj. učitelja), da izboljšajo svoje učenje. Vzajemno vrstniško poučevanje se je izkazalo za učinkovit pedagoški model v šolah. **Namen:** Namen te študije je bil raziskati izkušnje univerzitetnih študentov in učiteljev z vzajemnim vrstniškim poučevanjem pri atletiki, s poudarkom na opazovanju, sodelovalnih veščinah in prehodih. Zanimalo nas je, ali bodo bodoči učitelji in trenerji v prihodnosti uporabili ta pedagoški model. **Metode:** V raziskavi je sodelovalo 36 univerzitetnih študentov, ki so izvedli 45 učnih ur atletike po 45 minut z uporabo vzajemnega vrstniškega poučevanja. Polstrukturirani skupinski intervjuji z naključno izbranimi študenti so bili izvedeni dvakrat za vsako raziskovalno skupino. Med študijo je učitelj-raziskovalec po vsakem učnem delu napisal reflektivno analizo. Podatki so bili analizirani s tematsko analizo in stalnim primerjanjem. **Rezultati:** Identificirane so bile tri teme, ki opisujejo odnos študentov in učitelja do vzajemnega vrstniškega poučevanja: (a) »Znanje in opazovanje«, (b) »Medosebne in skupinske veščine« ter (c) »Uporabnost in prenos«. **Razprava in zaključek:** Glede na rezultate menimo, da bi morale imeti sodobne učne metode prostor v pedagoško usmerjenih univerzitetnih predmetih. Za prihodnje raziskave predlagamo zbiranje kvantitativnih podatkov, na primer o konceptualnem učenju univerzitetnih študentov.

**Ključne besede:** pregoški model, recipročni stil, športna vzgoja, šport, kvalitativna metodologija

<sup>1</sup>*Faculty of Sport, University of Ljubljana, Ljubljana, Slovenia*

*Corresponding author\*:* Lea Železnik Mežan

Faculty of Sport, University of Ljubljana, 1000 Ljubljana, Slovenia

E-mail: lea.zeleznikmezan@fsp.uni-lj.si

<https://doi.org/10.52165/kinsi.30.3.98-111>

## INTRODUCTION

Current literature supports modern pedagogical models that enable effective cognitive, motor and psychosocial development of youth participating in physical education (PE) or competitive sport (Bailey, Armour, Kirk, Jess, Pickup, & Sandford, 2009; Casey & Goodyear, 2015; Fernández-Rio & Iglesias, 2024; Metzler & Colquitt, 2021; Mosston & Ashworth, 2008). Cooperative learning (CL) is one such model that focuses on psychosocial development but also enables progress in motor learning and movement skills (Železnik Mežan & Škof, 2023; Železnik Mežan, Škof, Leskošek, & Cecić Erpič, 2023). CL proved to be more effective for teaching young people of different ages compared to traditional direct instruction for some objectives (Garvía-Medrano, García-Lopez, & Fernández-Río, 2023; Navarro-Patón, Rodríguez-Fernández, & Pereira, 2019; Salih, Hashim, & Kasim, 2021; Yang, Chen, Chen, & Lu, 2021). It was also well accepted by Slovenian athletics trainers and athletes (Železnik Mežan and Cecić Erpič, in press). However, Železnik Mežan and Cecić Erpič would suggest combining it with other pedagogical models. Furthermore, the trainers would need extensive additional training in CL in order to be able to decide, which learning objectives should be learnt with this pedagogical approach. Based on these findings, it is important to train future pedagogical sports experts who will be dealing with young people in modern teaching approaches. Although CL has proven to be very effective for youth learning, it is also known as one of the most complex pedagogical models (Železnik Mežan, 2024). CL is based on peer-assisted learning (Lafont, Rivière, Darnis, & Legrain, 2016). It refers to knowledge and skills acquired through the mutual help of learners. Peer-assisted learning includes various forms of peer interaction, such as: peer assessment, peer modelling, peer counselling and peer tutoring. In the latter, the roles of tutors and tutees are distributed in either reciprocal or fixed peer dyads (Ward & Lee, 2005). CL is not the only modern teaching approach that promotes learning with the help of peers and positive interdependence. One of them is also the so-called reciprocal style or reciprocal peer teaching (PT). As it may be easier to implement, we have decided to introduce prospective PE teachers, trainers and kinesiologists who are inexperienced in the field of modern teaching approaches to reciprocal PT.

According to Metzler (2011), PT is one of the eight pedagogical models used in PE. In addition, the reciprocal PT belongs to the spectrum of the nine teaching styles defined by Muska Mosston in the mid-1960s and developed primarily for teaching PE (Mosston & Ashworth, 2008). Reciprocal PT is a particular form of PT in which learners are paired and swap the roles of doer (i.e. tutee) and helper (i.e. tutor) in order to maximise each other's learning (Madou & Iserbyt,

2018; Mosston and Ashworth, 2008). While the doer performs the task, the helper observes and provides performance-based feedback, often supported by task cards (Iserbyt & Byra, 2013).

The elements of pair work as tutor and tutee during PT are benchmarks that serve as non-negotiable features of this pedagogical model (Madou & Iserbyt, 2018; Metzler, 2011). In order to fulfil these roles, learners must have certain cooperative skills (Grineski, 1996; Metzler, 2011; Železnik Mežan, 2024). One of the most important of these is giving feedback. Tutors are expected to be able to distinguish between correct and incorrect performance in order to provide feedback (Madou, Depaepe, Ward, & Iserbyt, 2023). This type of knowledge is called Specialised Content Knowledge (SCK). It is also very important, alongside Common Content Knowledge (CCK), which refers to the knowledge about the critical elements for correct performance. Unfortunately, SCK is often overlooked. Teaching SCK to future teachers was advocated by Madou and colleagues (2023). They wrote that training students in CCK and SCK before they start teaching youths could improve their understanding of the structure of the pedagogical process and help them in their role as facilitators. Even if prospective teachers and trainers do not choose to use PT, they would benefit from both types of content knowledge gained through the reciprocal PT.

Active participation is also one of the cooperative skills that should be taught to achieve model fidelity and make significant improvements in peer learning. Activity as the polar opposite of passivity is a central concept of constructivism. It is an inter- and transdisciplinary paradigm that supports student-centred didactics (Jank & Meyer, 2006). For this reason, modern approaches to teaching and learning are often associated with the constructivist paradigm (Casey, Goodyear, & Dyson, 2015; Lafont, 2012; Metzler, 2011; Železnik Mežan, 2024). According to the constructivist perspective, teaching is not about passing information to a passive learner (Jeriček, 2004). The learner gives meaning to the information. They can only learn something new if they allow a change to take place within themselves. A teacher can only trigger this change, but not bring it about. As an active co-creator, however, the learner constructs his own knowledge.

### **Prior Findings**

For PE, there is an extensive literature demonstrating the effectiveness of PT in influencing a wide range of learning outcomes. Teaching approaches that utilise peers to support psychomotor learning have been researched in primary and secondary PE (Jenkinson, Naughton, & Benson, 2014; Ward & Lee, 2005) and in higher education PE (Madou & Iserbyt,

2018; Miletic, Miletic, & Uzunovic; Pitsi, Digelidis, & Papaioannou, 2015; Nawawi, Alnedral, Ihsan, Tri Mario, & Mardesia, 2023). They show significant psychomotor learning success in students of different ages and abilities. In terms of the content implemented, reviews have emphasised that individual sports are significantly underrepresented in the literature (Fernández-Rio & Iglesias, 2024).

Dyson (2002) argued that clearly defining the roles of doers and helpers is an element that promotes learning through enhanced peer interaction. Although the effectiveness of using peers to influence student learning is well established, some questions about the optimal grouping of students remain unanswered (Madou & Iserbyt, 2018). Both Ward and Lee (2005) and Lafont and colleagues (2016) mention the mediating effect of pairing by ability on learning outcomes. In gymnastics, learning a somersault was found to have a better learning effect and retention in mixed pairs than in pairs of equal ability (Arripe-Longueville, Fleurance, & Winnykamen, 1995).

Reciprocal PT has been described as an important pedagogical model for PE in schools (Metzler, 2011; Mosston & Ashworth, 2008). The aim of this study was to examine university students' and teacher's experiences with reciprocal PT in athletics, focusing on observation, cooperative skills, and transitions. We were interested in how reciprocal PT influences the pedagogical views of prospective teachers and trainers.

## **METHODS**

### **Participants**

There were 36 (15 female, 21 male) university students of three different study programmes involved in this study: 12 from PE, 12 from Sports Training and 12 from Kinesiology study programme. All subjects participated in 45 45-minute lessons (or at least 80% of them) in athletics in which the reciprocal PT was applied. All lessons were taught by the same university teacher (female, 29 years old) who was familiar with the reciprocal PT and CL. He had over 5 years of experience as a teacher and 12 years of experience in athletics. He also obtained a PhD in CL in youth athletics. The students had no significant experience with reciprocal PT.

### **Procedure**

Before the study began, an introductory meeting was held for the students to inform them about the study and give them the opportunity to ask questions. They signed a consent form. From

February to May 2024, the students took part in athletics lessons in which reciprocal PT was used. The students were grouped into heterogeneous pairs according to their prior knowledge of athletics (Madou & Iserbyt, 2018). Halfway through the intervention programme, the pairs were swapped in order to positively influence the students' learning and their social development (Polvi & Telama, 2000). During the study, the teacher-as-researcher wrote a reflective analysis after each lesson. Semi-structured group interviews with randomly selected students took place twice for each study group – in mid-March and mid-May.

## **Data Collection**

Qualitative data were collected to report on the university students' and teacher's perceptions of reciprocal PT: semi-structured group interviews with the students and a Post-Teaching Reflective Analysis (PTRA).

### ***Semi-Structured Group Interview***

To investigate students' attitudes towards reciprocal PT and its actual implementation, we interviewed randomly selected students in groups of six. Different students were selected each time. Each interview lasted between 10 and 20 minutes. We asked the students five semi-structured questions on the following topics: Differences from the traditional practise style ('How is PT different from the teaching approach used in schools, sports clubs, etc.');

perceptions of the implementation of PT in education ('Provide your view on the implementation of PT in education – in general and at university level.');

students' reaction to the new teaching approach and how they experienced teaching with the reciprocal PT ('What challenges did the implementation of the new teaching approach bring and how did you deal with them?');

how it influenced their pedagogical view ('Why would you recommend the reciprocal PT to teachers and trainers and why would you use it yourself?');

the effectiveness of PT ('Where have you seen the most progress in application of the reciprocal PT?'). The questionnaire is available from the author.

### ***Post-Teaching Reflective Analysis***

The teacher-as-researcher answered a structured questionnaire after each lesson, separately for each study group. The questionnaire is a translated and modified version of the Post-Teaching Reflective Analysis (Dyson 1994, quoted in Casey, Dyson. & Campbell 2009, 422). It is available from the author. We wanted to gain a deeper insight into the achievement of goals in different categories ('Did you achieve the learning goals you set? How do you know this?

Explain using specific observations.’) that indicate the effectiveness of the reciprocal PT and the most positive and negative things that happened during the lesson from the teacher’s perspective. He answered five questions.

### **Data Analysis**

The students’ responses from the interview and the university teacher’s responses from the PTRAs were analysed using thematic analysis and constant comparison (Lincoln & Guba, 1985). The interviews were recorded and transcribed verbatim. The responses from the interviews were carefully read through several times to get a sense of their meaning as a whole. The analysis continued with the coding of the data. Each relevant thought of the students was given a code and transferred to a table. The codes were then sorted into fourteen categories based on the existing theoretical concepts, separately for each study group.

The PTRAs’ responses were also read several times, but the analysis was slightly different. Fourteen categories were determined in advance based on the questionnaire analysis. The table analysing the interviews was extended to include the teacher’s responses (additional column).

## **RESULTS**

Three themes were identified that describe university students’ and teacher’s attitudes toward reciprocal PT, focusing on observation, cooperative skills, and transition: (a) ‘Knowledge and observation’, (b) ‘Interpersonal and small-group skills’, and (c) ‘Usefulness and transition’. The categories are presented along with the corresponding codes in the next subsections.

### **Knowledge and Observation**

Students reported that they learned more with the reciprocal PT than with the traditional practise style. They reported that they gained more of both motor and theoretical knowledge that enabled them to know athletic movements and the purpose of these movements. “A classmate explains something different, so you might understand it even if you do not understand the teacher.” The progress of the students was also noted by the teacher: “They have learnt a lot – they have acquired motor skills, understood jumping... they have also learnt to observe, look for mistakes and give feedback to their classmates...”

The students observed their classmates to see if they fulfilled the critical elements of the assigned tasks. In order to know exactly what to observe, we took a lot of time to familiarise

the tutors with these critical elements for each athletic movement. The students were aware: “It’s explained well, what’s important, what to look out for, the technique...” They thought it was very good that “even when we were doing ankling already the fifth time, the teacher always asked what was important”. The teacher thought it was great that “some students couldn’t stop looking at the screen and reading the critical elements over and over again”. The teacher shared his observation that “the students felt responsible for the knowledge of their peers”. This is one of the most important elements of PT.

Students were often provided with various learning materials that were well received by them, even if they did not have much experience using them for motor learning. They said that these materials facilitated learning because they learnt what certain tasks were aimed at (critical elements). “I like getting worksheets because I get an insight into the critical elements I need to consider when teaching and learning certain movements. In this way, you first deal with the task theoretically, which then facilitates motor learning. The materials allow us to give more qualitative feedback. I think this is much better than observing peers without knowing what exactly we are observing. There is no point in assessment without proper critical elements, because we have no idea how a certain movement should be performed. The worksheets can be kept for future practise, which is very useful.” The students recognised another positive aspect of using different learning materials: “These materials are really amazing. When you read through them and explain them to your partner so many times, it imprints itself in your subconscious. Then when you do it yourself, you can correct yourself at the same time.” The variety of materials was also well received because of the different learning styles: “It’s good that we sometimes get photos, videos... because we are not all hearing types.” *All mentioned materials can be obtained from the author.*

The students reported that they had greatly improved giving feedback. They found out how economical it is to observe and help each other: “I really like getting feedback all the time. The teacher has limited capacity, but this way you can be constantly observed. We didn’t see every mistake, but we certainly saw the big mistakes and uncovered them...” The future sports trainers also felt that more feedback from different people is very effective. “I think it’s very good because you always see yourself differently to other people... It’s very welcome to get other opinions.” “I think it’s good because the partners observe each other a lot more this way. You get a lot more feedback than if the teacher was the only person giving feedback... he has 20 students! So he might correct you twice a lesson... With PT, you get a lot more hints and become aware of your own mistakes.” Giving feedback refers to the role of a tutor, which the

teacher said was “taken very seriously... they were great instructors, explaining and demonstrating tasks and then giving qualitative feedback”.

### **Interpersonal and Small-Group Skills**

In order to learn cooperatively, learners need to have various interpersonal and small-group skills (in short: cooperative skills). The use of various cooperative skills was frequently noted by the teacher: “They were very active learners – most of the time they were all involved and focused on a specific task. Communication between group members was appropriate. The groups worked together in an exemplary manner. Members took on the role of tutor responsibly. They first explained and demonstrated a task and then closely observed, praised and gave feedback to their classmates.” This type of teaching proved to be very useful when a student was absent.

The students recognised the positive impact of PT on learner activity. They liked this approach “because it activates all students at the same time. If we were working alone and the teacher was the only observer, you would cool off and get bored... But when you work in pairs, you have to be active all the time” “You have to activate your brain. From athletics, I was used to only the trainer giving feedback and not being able or having to think about your mistakes yourself.” The students also found that the reciprocal PT ensures that all learners are actively involved: “Both partners really have to be active.”

The students also learnt how to give and accept constructive criticism: “...at the beginning we were a little afraid... so as not to hurt our partner. But now we want to hear criticism so that we know what we can improve.” The PE students also felt that “it’s not wrong to try and make mistakes”. They felt that they have “time and space to make mistakes and to improve... No one will judge you if you stumble over a hurdle, for example.” This indicates a very good class climate. In the Kinesiology group, on the other hand, the teacher occasionally missed a little more mutual trust among the students: “...the boys laughed at those who did not immediately acquire the knowledge of how to skip over hurdles... but I warned them sharply”. The Kinesiology students also had problems with concentration from time to time. The teacher “had to admonish them not to throw vortexes around, but to start by observing their partner and offering help. Towards the end of the lesson, they began to comply with me, which was reflected in their improved technique.”



## Usefulness and Transition

The group of prospective PE students generally responded very well to reciprocal PT. It was only a little more difficult at the beginning because “we didn’t have much prior knowledge, so we needed time to familiarise ourselves with the new approach”. The teacher felt that working in pairs suited them very well. The students realised that they could do a lot more repetition than if they had worked individually and only the teacher had taken care of the feedback. Because of all the positive experiences they have had, they would like to introduce PT in other subjects in the Faculty of Sport. They came up with the idea that this approach “could also be used in primary and secondary schools, as it enables better group cohesion”. On the other hand, the students expressed their fears that teachers in schools might have more problems than university teacher: “We are all motivated for work and we all want to learn. In school, it’s hard to pair up, let alone promote learning. I do not think PT would be as successful in schools as it is here. Students in school should be very encouraged at the beginning and it should be thoroughly explained to them why it is useful.” The students in our study also noted that younger learners “may not observe and correct themselves properly and instead start playing games, making jokes...”. For these reasons, they believe that PT will never be as successful in schools as it is at university.

The Kinesiology students described the transition to the new pedagogical model: “In the first few lessons, it was perhaps a little more difficult to approach a partner when you had to take the initiative yourself. But as we basically knew each other from before, it wasn’t too difficult.” They also found the educational process with the RS very effective. In addition to the amount of work done in 90 minutes, “they also learnt how to prepare different tools and accessories and how to protect the jumping pit”. However, the students felt that this type of teaching and learning was not suitable for schools “because students quickly lose concentration and start to enjoy themselves... unmotivated individuals would get extra time to party, because in PT, learners actually work independently.” They also thought about the students who “could be criticised and feel offended by it...”.

The sports trainers found PT effective, so they would use it for themselves too, “but not all the time – one or two out of four training sessions a week, for example”. Most of them did not find the switch to the nonclassical reciprocal approach dramatic: “I liked it straight away... although I like communicating by nature ... so I got used to it quickly... no problems.” However, some students initially found it difficult to give feedback to a partner who was having technical

problems. On the benefits of PT for the school, they said: “I think it’s really good because we can see mistakes and know how to fix them. However, pupils in the first triad of primary school do not yet know what an athletic movement should look like. This approach would be more suitable for the second and third triads.”

## **DISCUSSION AND CONCLUSION**

### **Active Teaching and Learning**

The students in our study were generally good observers and corrected each other very often. This can be attributed to the learning materials such as various worksheets, tables, videos, etc. that were used very frequently. In addition, the students have developed a very good attitude towards the use of learning materials. They enabled them to give more qualitative feedback. Learning materials have already been shown to hold students accountable for learning and facilitate performance and the provision of feedback (Dyson, 2002; Iserbyt & Byra, 2013; Iserbyt, Elen, & Behets, 2009). The key element of these materials that enables huge improvements in learning are the critical elements. This was noted and praised by the students in our study.

Some students were initially unsure about their own role of the tutor. Some did not have sufficient content knowledge, some had not yet developed sufficient cooperative skills and some did not have an adequate self-concept. However, thanks to the identified critical elements and the teacher’s commitment to teaching the students these critical elements and the necessary cooperative skills, they improved their self-concept. An improvement in self-concept was also noted when students described learning as relaxed and without pressure to make mistakes. This finding goes hand in hand with the findings of Železnik and her colleagues (2023), who demonstrated the positive influence of CL on learners’ self-concept.

The students in our study found that learners need to activate their brains when PT each other. They found that by actively observing and correcting their classmates, they gained the knowledge that helped them correct their own movements as well. During the experiment, the students began to realise that it is a great privilege for learners to have the opportunity to correct their classmates. Otherwise, the teacher is the only person giving feedback, so it is limited to a few comments per lesson. Students have also found that the shared responsibility for learning

also leads to more repetition of tasks. If learners are able to observe and teach their classmates, and therefore themselves, the effectiveness of the learning process should not be questioned.

### **Models-Based Practise**

According to the findings from the interviews and the current literature (Novak, 2004; Železnik Mežan, 2024), the traditional practise style still predominates in Slovenian schools and sports clubs. Although there are some theories and numerous empirical studies that support active learner participation in the learning process, the traditional teacher-centred approach is deeply rooted. However, the students in our study had no major problems adapting to the new way of learning. This finding could be due to the pedagogical model chosen or the age of the learners involved. Several authors who have conducted research on CL reported a difficult adjustment to the new pedagogical model. Casey, Goodyear and Dyson (2015) found that groups were not initially focused and students had difficulty taking on different roles and cooperating with other group members. Silva and colleagues (2021) wrote that students were initially unable to use appropriate social skills, they had difficulty accepting others' opinions, and they were unable to resolve conflicts. Casey and colleagues (2009) also reported a difficult transition to CL. From this we can conclude that PT might be a less complex pedagogical model that could be more suitable for learners who have not yet experienced a model other than direct instruction. On the other hand, the participants in our study agreed that PT is much easier to implement with university students than with primary or secondary school students. Furthermore, adult tutors have proven to be more effective tutors than children, who focus more on the immediate goal and leave less initiative to the tutee (Lafont, Rivière, Darnis, & Legrain, 2016).

However, this does not mean that PT is not suitable for younger learners. In this case, however, a teacher would have to make more effort to get them interested in PT and train them to be good tutors. It is generally recognised that training tutors leads to better results (Ensergueix & Lafont, 2011). The students in our study also needed time and training to become skilled at giving feedback. In addition, it would be very important in primary and secondary school to invest a lot of time and energy in teaching cooperative skills. These should be explicitly taught, just like all other skills (Grineski, 1996). Otherwise, cooperation will not be successful or even possible. A teacher should be very consistent. The emphasis, according to students, should be on giving and accepting criticism, improving oneself rather than comparing oneself to others, focusing on a task and persisting with it, etc. In this way, young people would benefit even more from PT than university students, as they could learn many important (life) skills.

## Strengths and Limitations

In light of these findings, we have decided to present this approach to future teachers and trainers. We believe that modern teaching approaches should have a place in pedagogically orientated university courses. The PE students expressed the wish that the full version of PT should also be used in other subjects in the faculty. Only in this way could we expect modern pedagogical models to be introduced in primary and secondary schools over time. We are not proposing to replace the existing pedagogical model with PT. If university students are given an insight into the different models, they can choose the most appropriate teaching approach depending on the different factors (objectives, group, conditions, etc.) (Gurvitch & Metzler, 2013; Metzler, 2011). Reciprocal PT proved to be a good choice for inexperienced learners to acquire skills such as observing, giving feedback, criticising, focusing on tasks, etc.

For future research, we would suggest collecting quantitative data, e.g. on the conceptual learning of university students. We would suggest investigating primary and secondary students' experiences with PT. Future research should also aim to confirm model fidelity (using quantitative methods).

## Declaration of Conflicting Interests

The author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

## REFERENCES

- Arripe-longueville, F., Fleurance, P., & Winnykamen, F. (1995). Effects of the degree of competence symmetry-asymmetry in the acquisition of a motor skill in a dyad. *Journal of Human Movement Studies*, 28, 255–273.
- Bailey, R., Armour, K., Kirk, D., Jess, M., Pickup I., & Sandford R. (2009). The educational benefits claimed for physical education and school sport: An academic review. *Research Papers in Education*, 24(1), 1–27.
- Casey, A., Dyson, B., & Campbell, A. (2009). Action research in physical education: Focusing beyond myself through cooperative learning. *Educational Action Research*, 17(3), 407–23. <https://doi.org/10.1080/09650790903093508>
- Casey, A., & Goodyear, V. A. (2015). Can cooperative learning achieve the four learning outcomes of physical education? A review of literature. *Quest*, 67(1), 56–72. <https://doi.org/10.1080/00336297.2014.984733>
- Casey, A., Goodyear, V. A., & Dyson, B. (2015). Model fidelity and students' responses to an authenticated unit of cooperative learning. *Journal of Teaching in Physical Education*, 34(4), 642–660. <https://doi.org/10.1123/jtpe.2013-0227>
- Dyson, B. (2002). The implementation of cooperative learning in an elementary physical education program. *Journal of Teaching in Physical Education*, 22, 69–85. <https://doi.org/10.1123/jtpe.22.1.69>

- Ensergueix, P., & Lafont, L. (2011). Impact of trained versus spontaneous reciprocal peer tutoring on adolescent students. *Journal of Applied Psychology*, 23, 381–397.
- Fernández-Río, J., & Iglesias, D. (2024). What do we know about pedagogical models in physical education so far? An umbrella review. *Physical Education and Sport Pedagogy*, 29(2), 190–205. <https://doi.org/10.1080/17408989.2022.2039615>
- Garvía-Medrano, P. M., García-López, L. M., & Fernández-Río, J. (2023). Cooperative learning, basic psychological needs and intention to be physically active. *Revista Internacional de Medicina y Ciencias de la Actividad Física y del Deporte*, 23(89), 243–260. <https://doi.org/10.15366/rimcafd2022.89.017>
- Grineski, S. (1996). *Cooperative learning in physical education*. Champaign: Human Kinetics.
- Gurvitch, R., & Metzler, M. (2013). Aligning learning activities with instructional models. *Journal of Physical Education, Recreation & Dance*, 84(3), 30–37. <https://doi.org/10.1080/07303084.2013.767719>
- Iserbyt, P. & Byra, M. (2013). Task cards: Design and use in the reciprocal style of teaching. *Journal of Physical Education, Recreation & Dance*, 84(2), 20–26.
- Iserbyt, P., Elen, J., & Behets, D. (2009). Peer evaluation in reciprocal learning with task cards for acquiring basic life support (BLS). *Resuscitation*, 80(12), 1394–1398. <https://doi.org/10.1016/j.resuscitation.2009.07.006>
- Jank, W. in Meyer, H. (2006). *Didaktični modeli* [Didactical models]. Ljubljana: Zavod RS za šolstvo.
- Jenkinson, K. A., Naughton, G., & Benson, A. C. (2014). Peer-assisted learning in school physical education, Sport and physical activity programmes: A systematic review. *Physical Education and Sport Pedagogy* 19(3), 253–277. <https://doi.org/10.1080/17408989.2012.754004>
- Jeriček, H. (2004). Posledice konstruktivizma pri delu z ljudmi [Consequences of constructivism in working with people]. In B. Marentič Požarnik (Ed.), *Konstruktivizem v šoli in izobraževanje učiteljev* [Constructivism in schools and teacher education] (pp. 97–113). Ljubljana: Center za pedagoško izobraževanje Filozofske fakultete.
- Lafont, L. (2012). Cooperative learning and tutoring in sports and physical activities. In B. Dyson & A. Casey (Eds.), *Cooperative learning in physical education: A researchbased approach* (pp. 136–149). UK: Routledge Studies in Physical Education and Youth Sport.
- Lafont, L., Rivièrè, C., Darnis, F., & Legrain, P. (2016). How to structure group work? Conditions of efficacy and methodological considerations in physical education. *European Physical Education Review*, 1–12. <https://doi.org/10.1177/1356336X15626639>
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic Inquiry*. Newbury Park, CA: Sage.
- Madou, T., Depaepe, F., Ward, P., & Iserbyt, P. (2023). The effect of specialized content knowledge in reciprocal peer learning in a university content class. *Physical Education and Sport Pedagogy*, 1–11. <https://doi.org/10.1080/17408989.2023.2256746>
- Madou, T., & Iserbyt, P. (2018). The effect of pairing by ability on performance, physical activity, and time-on-task during reciprocal peer teaching in swimming. *The Physical Educator*, 75(5):756–773. <https://doi.org/10.18666/TPE-2018-V75-I5-8326>
- Metzler, M. W. (2011). *Instructional models for physical education*. New York: Routledge.
- Metzler, M. W., & Colquitt, G. T. (2021). *Instructional models for physical education* (4th Ed.). New York: Routledge.
- Miletic, D., Miletic, A., & Uzunovic, S. (2023). The effects of reciprocal, self-check, and command teaching styles on dance learning. *Physical Education of Students*, 27(5), 261–269. <https://doi.org/10.15561/20755279.2023.0506>
- Mosston, M., & Ashworth, S. (2008). *Teaching Physical Education*. Online Edition.

- Navarro-Patón, R., Rodríguez-Fernández, J. E., & Pereira, B. O. (2019). Cooperative games vs competitive games in primary school education: What effects do they have on schoolchildren motivation? *Journal of Human Sport and Exercise, 14*, 1–4.
- Nawawi, U., Alnedral, Ihsan, N., Tri Mario, D., & Mardesia, P. (2023). The effect of learning methods and motor skills on the learning outcomes of basic techniques in volleyball. *Journal of Physical Education and Sport, 23*(9), 2453–2460. <https://doi.org/10.7752/jpes.2023.09282>
- Novak, B. (2004). Odnos med učenjem in poukom v osnovni šoli z vidika transformacijske paradigme [Relationship between learning and instruction in primary school from the perspective of transformational paradigm]. In B. Marentič Požarnik (Ed.), *Konstruktivizem v šoli in izobraževanje učiteljev* [Constructivism in schools and teacher education] (pp. 181–194). Center za pedagoško izobraževanje Filozofske fakultete.
- Pitsi, A., Digelidis, N., & Papaioannou, A. (2015). The effects of reciprocal and self-check teaching styles in students' intrinsic-extrinsic motivation, enjoyment and autonomy in teaching traditional Greek dances. *Journal of Physical Education and Sport, 15*(2), 352–361. <https://doi.org/10.7752/jpes.2015.02053>
- Polvi, S., & Telama, R. (2000). The use of cooperative learning as a social enhancer in physical education. *Scandinavian Journal of Educational Research, 44*(1), 105–115. <https://doi.org/10.1080/713696660>
- Salih, M. M. M., Hashim, R. S., & Kasim, M. A. (2021). Forecasting achievement sports through cooperative learning in handball training in physical education. *Annals of Applied Sport Science, 9*(3), 1–8. <https://doi.org/10.29252/aassjournal.953>
- Silva, R., Farias, C., & Mesquita, I. (2021). Cooperative learning contribution to student social learning and active role in the class. *Sustainability, 13*, 8644. <https://doi.org/10.3390/su13158644>
- Ward, P., & Lee, M.-A. (2005). Peer-assisted learning in physical education: A review of theory and research. *Journal of Teaching in Physical Education, 24*, 205 – 225. <https://doi.org/10.1123/jtpe.24.3.205>
- Yang, C., Chen, R., Chen, X., & Lu, K.-H. (2021). The efficiency of cooperative learning in physical education on the learning of action skills and learning motivation. *Frontiers in Psychology, 12*, 1–17. <https://doi.org/10.3389/fpsyg.2021.717528>
- Železnik Mežan, L. (2024). *Učinki sodelovalnega učenja na gibalna in psihosocialna vedenja mladih atletov* [Effects of cooperative learning on physical and psychosocial behaviours in youth athletes] [Doctoral thesis, University of Ljubljana, Faculty of Sport]. <https://repozitorij.uni-lj.si/Dokument.php?id=182100&lang=slv>
- Železnik Mežan, L., & Cecić Erpič, S. (in press). Children and Coaches in Athletics Experiencing Cooperative Learning for the First Time: A Qualitative Study. *Physical Education and Sport Pedagogy*.
- Železnik Mežan, L., & Škof, B. (2023). Cooperative learning vs. Direct instruction in youth sport: Effects on children's motor learning. *Kinesiologia Slovenica, 29*(2), 136–156. <https://doi.org/10.52165/kinsi.29.2.136-156>
- Železnik Mežan, L., Škof, B., Leskošek, B., & Cecić Erpič, S. (2023). Effects of cooperative learning in youth athletics' motivational climate, peer relationships and self-concept. *Physical Education and Sport Pedagogy*. <https://doi.org/10.1080/17408989.2023.2232814>