

PE teachers' perceptions of and experiences with using the TGFU model in teaching team games in elementary school

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Abstract:

Problem statement: The theoretical literature on Physical Education (PE) supports the claims of the Teaching Games for Understanding (TGFU) approach advocates for teaching games. However, contradictory evidence exists in the empirical-scientific literature. A limited number of studies have focused on in-service PE teachers' perceptions of the TGFU model. Most of these studies have focused on the views of in-service secondary education PE teachers, while a limited number of studies have examined in-service PE teachers' views on implementing TGFU in elementary education. **Purpose:** The purpose of this study was to examine in-service PE teachers' perceptions of and experiences with the TGFU model in PE and its effectiveness in teaching team games (team handball) to elementary students. **Methods:** Six in-service PE teachers participated in this study (three females and three males) from six separate Greek public elementary schools. PE teachers were trained to deliver a TGFU unit and then they applied the TGFU model to teach a common unit of eight consecutive ready-made team handball lessons. Qualitative data were gathered from semi-structured interviews, and quantitative data were obtained from participants' diaries. Each teacher participated in an individual semi-structured interview to record their perceptions of the TGFU model. **Results:** Participants revealed that they held positive views of the TGFU model and were generally satisfied with its impact on students' progress. More specifically, they noted that TGFU helped them to develop their students' skills, knowledge of the rules, tactics, and game play. In addition, they reported that the TGFU model significantly promoted students' enjoyment, involvement, and cooperation in the lesson. They stressed that the TGFU model helped the less skilful students in playing team games to improve their skills, performance, and understanding of the game tactics and increased their confidence and involvement in the PE. All PE teachers who participated in this study identified an array of benefits of the TGFU implementation and hence stated that they will adopt this model for teaching team games. In addition, they mentioned that they will recommend it to colleagues as an effective approach for teaching team games. **Conclusion:** All participants stated that TGFU helped them in achieving the elementary PE curriculum goals regarding team games. Thus, it can be concluded that TGFU is effective and suitable for teaching team games to elementary school students.

Keywords: primary school, games-centred approach, teaching games for understanding, physical education, in-service PE teachers, teacher education

Introduction

Teaching in Physical Education (PE) is by its nature a multidimensional and complex task (Graham, 2008), and PE teachers have to accomplish various goals. The Greek PE elementary curriculum aims to improve students' physical development and health through their motor development and their harmonious integration into society (HMER, 2003). The curriculum includes various team games (i.e., football, basketball, volleyball and team handball) to help PE teachers achieve these goals. However, the delivery of team games in PE is not always effective. For instance, in the United Kingdom, both non-PE teachers and coaches fail to teach these games effectively and comprehensibly. This occurs because they focus their teaching on students' skill development (Ward & Griggs, 2011). Additionally, Metzler (2011, p.5) argued that various factors (e.g., instructional goals, curriculum structure and the chosen instructional model) significantly affect students' learning in the PE context. Teaching Games for Understanding (TGFU) is an instructional model that was introduced by Bunker and Thorpe in 1982; it is an alternative model for teaching team games in PE. According to the TGFU model, students learn a game effectively when the teacher focuses on their understanding of the philosophy and the way a game is played, its rules and its tactics along with students' skills development (Bunker & Thorpe, 1982). Playing games is an essential part of teaching in TGFU. A typical TGFU lesson begins and ends with a mini-game, with technical skills practiced in between. The teacher modifies the mini-game according to the lesson's goals and the students' ages and abilities (Thorpe, 1990). The mini-game format has elements that are similar to the game being taught, with modifications to the rules, court dimensions, and equipment size. Gradually, the mini-game is modified with the aim of reaching the final form of the game being taught while retaining students' interest (Kirk & MacPhail, 2002).

Many academics, teachers and coaches from various countries believe that the extensive use of modified games as part of the TGFU approach offers many advantages. This model can be used in a sport and PE context for teaching games and sports (Butler, Oslin, Mitchell, & Griffin, 2008; Kirk, 2010; Light, Curry, & Mooney, 2014). TGFU can effectively promote students' cognitive, psychomotor (Allison & Thorpe, 1997; Gray & Sproule, 2011; Turner & Martinek, 1999) and emotional development (Mandigo, Holt, Anderson & Sheppard, 2008; Chen & Light, 2006; Chatzopoulos, Drakou, Kotzamanidou, & Tsorbatzoudis, 2006; Jones, Marshall & Peters, 2010). Researchers' recognition of these benefits has led them to suggest TGFU as an effective model for teaching games in PE. Nevertheless, most teachers still prefer traditional methods that focus on skill teaching and technique improvement (Harvey, Song, Baek & Mars, 2015). Kirk and McPhail (2002) noted that there is little information on how teachers use TGFU or on their perceptions of its usefulness as a teaching model. American and Canadian advocates of this approach have noted a common failure of academics and professionals to promote the TGFU approach to the desired extent in schools (Butler et al., 2008). Game Sense (an Australian variation of TGFU) had little effect on the practice of PE teachers in an Australian state (Pill, 2011). Similarly, teachers in the UK use TGFU on a small scale; the dominant method for teaching games in the UK still prioritizes the teaching of skills (Jones & Cope, 2011).

In their review, Stolz and Pill (2014) clearly stated that the theoretical literature supports the claims of the TGFU approach. However, the authors emphasized the existence of contradictory evidence in the empirical-scientific literature on whether TGFU enhances the teaching of games. In addition, Butler et al. (2008) noted that there is a gap between researchers and teachers (i.e., between theory and implementation), which prevents TGFU from becoming a common practice in PE. It is not always the case that theory and research in PE provide solutions to professionals in their everyday practice at school (Stolz & Pill, 2014). Consequently, it can be argued that the call of TGFU founders towards PE researchers to investigate its effectiveness thoroughly (Thorpe & Bunker, 1986) is still relevant.

PE teachers' perceptions of the TGFU model

Extensive research has focused on pre-service teachers' views on TGFU. However, a limited number of studies have focused on in-service PE teachers' perceptions of the TGFU model (Harvey & Jarrett, 2014). Most of these studies have focused on the views of in-service secondary education PE teachers (Allison & Thorpe, 1997; Brooker, Kirk, Braikua & Bransgrove, 2000; Diaz-Cueto, Hernandez-Alvarez & Castejon, 2010), while a limited number of studies have examined PE teachers' views on implementing TGFU in elementary education. A rational explanation for this may be that Bunker and Thorpe (1982) first recommended TGFU as a model for teaching games in secondary PE education.

Research findings concerning both elementary and secondary PE teachers reported that PE teachers had positive views on TGFU because this model promoted students' enjoyment, helped PE teachers to include in PE students with varying skill levels (Wang, 2013) and enhanced the skills of students (Wang & Ha, 2013). Similarly, teachers in Light and Butler's (2005) study stated that TGFU empowers their cooperation with the students and the cooperation between students. Furthermore, they stressed that during the TGFU structured lesson students' motivation, enjoyment and learning were higher. Moreover, research in secondary education emphasized that TGFU promoted students' cognitive involvement, which is beneficial for low-skilled students (Diaz-Cueto et al., 2010). Likewise, research findings in elementary education supported that TGFU is considered a suitable method to improve students' skills and general game ability, increase their motivation and help them in conflict resolution, even for lower grade students (Memmert & Koning, 2007). In addition, research findings suggested that the delivery of TGFU is more effective when PE teachers have playing or coaching experience in games (Brooker et al., 2000) and are familiar with games' defensive and offensive strategies (Light & Butler, 2005). In contrast, PE teachers' insufficient game knowledge along with the implementation of TGFU appeared to cause lack of confidence in their teaching ability (Wang, 2013). Interestingly, research findings highlighted that the specialization of in-service PE teachers in individual sports (Diaz-Cueto et al., 2010; Wang, 2013) and their unfamiliarity with the team game being taught (Brooker et al., 2000) may create difficulties for and barriers to the implementation of the TGFU model and to its incorporation into their teaching repertoire.

Teachers' evaluation and application of studies in the PE context is especially important to validate TGFU as an effective didactic model for games (Griffin, Brooker, & Patton, 2005). The importance of conducting research on TGFU in PE context was emphasized by Stolz and Pill (2014), who additionally underlined the importance of cooperation between in-service PE teachers and researchers. Furthermore, Harvey and Jarrett (2014) proposed investigating TGFU implementation in non-English speaking countries and countries where it is not widely known, both to get an understanding of their perspective on the use of the model but also to further investigate the suitability of TGFU as a PE teaching model in such countries' educational systems.

TGFU is neither widely known nor used by teachers in Greece. Team games in Greek schools are traditionally taught with the 'technique method', which focuses on developing sport-related skills through drills (Bourneli, Koutsouki, Zografou, Aggelonidis, Chatzopoulos & Agalianou, 2007, p.20). This method's dominance is explained by the fact that Greek in-service PE teachers have not had any previous undergraduate or professional development experience with or knowledge of various instructional approaches before 2005. The TGFU approach, among other instructional approaches, was first introduced to Greek PE universities in 2005 as

a purely theoretical part of the Pedagogy of PE module. Even today, varied instructional approaches are taught theoretically, rather than with both theoretical and practical courses. Additionally, due to the economic crisis, a small number of PE teachers were hired in the last 14 years, and thus the vast majority of them have not been exposed to TGFU.

Consequently, taking into consideration the implication of abovementioned studies, the authors designed a study aimed at examining perceptions of and experiences with the TGFU model in PE of in-service PE teachers who came from non-English speaking countries, specialized in individual sports and had a lack of previous athletic or coaching experience with team games. A second aim was to examine their perceptions of the effectiveness of TGFU in teaching team games to 11–12-year-old students.

Materials and methods

Participants

The participants in this study were six in-service PE teachers (three females and three males) from six different Greek public elementary schools ($Mage = 54.33$). They taught a unit of eight team handball sessions at their respective schools. While all of them had considerable teaching experience ($M = 22.17$), none had any experience with the TGFU model. PE teachers' written assent forms were obtained before data collection. The study was conducted with the approval of the Ministry of Education and the University of Thessaly Ethics Committee.

Research planning and process

This study was conducted in the Educational Region of Western Greece. The study's design was based on the work of Harvey et al. (2015). They applied a 'reference to practice' approach. Kirk (2005) suggested that this design focuses on a teaching approach by analysing the outcomes of the intervention and the changes in the students without comparing them to second or control groups. Thus, the design of this research included only an experimental group. Additionally, Patton (2002) articulated that a purposeful sampling can be a useful research design. The criteria for selecting each of the six elementary schools were: (a) the existence of a team handball court in the school yard; (b) school location; (c) the PE teacher's specialization in individual sports; (d) the PE teachers' unfamiliarity with the TGFU; (e) the PE teacher's lack of previous playing or coaching experience in team games; (f) the students' lack of previous exposure to TGFU. The authors examined which of the 92 elementary schools in the city had a team handball court, and then an open invitation was addressed to PE teachers and their headmasters. A total of 30 PE teachers accepted the invitation. However, only six of them met the criteria of the teacher's lack of previous playing or coaching experience in team sports and the specialization in individual sports. Then, the authors visited the six schools and met individually with the headmaster and PE teacher at each school to inform them analytically about the research. The characteristics of the six schools were representative of public elementary schools.

The authors designed eight TGFU-based sessions of team handball, aligned with the 5th and 6th grade curricula. The intervention was applied to 16 classes (six fifth grade classes and ten sixth grade classes). The Greek elementary school comprises six grades (1–6). The age range of the children is 7–12 years. The number of enrolled students in each class varied between 14 and 25. The six teachers completed a total of 128 sessions of TGFU.

The eight sessions were delivered on a team handball outdoor asphalt court (18 × 35 m). All schools had the same equipment for teaching team handball (one ball for every two children, training jerseys and marking cones). Lastly, lesson observations were conducted to examine interventions' fidelity. The authors discreetly attended as observers the first and two additional lessons (unscheduled) of each class that participated in the study, without intervening in the lesson.

Pre-intervention teachers' training on TGFU

The authors trained the six PE teachers on the TGFU model within four weeks (one meeting–training session per week) before the intervention. The first meeting, a theoretical presentation about TGFU, lasted five hours. The teachers were also given written material about TGFU. The second three-hour meeting was delivered individually at each school. This session included the delivery of a sample lesson provided by the authors aimed at demonstrating the practical application of TGFU. During the third meeting–session, the authors met individually for four hours with each teacher to overview the team handball unit and address any questions or concerns. During the final meeting, each PE teacher delivered a ready-made TGFU lesson to fourth graders and then met with the authors for feedback. The PE teachers had two weeks before the intervention to study the intervention lessons and prepare for effective delivery.

The unit

The authors designed a unit of eight sessions based on the structure proposed by Mitchel, Oslin and Griffin (2006) for teaching football and basketball, as well as the benchmarks of TGFU teaching as determined by Metzler (2011). The objective of the unit was to learn the game of team handball through interesting and enjoyable lessons. Therefore, the following fifth and sixth grade PE curriculum goals were included: throw and

catch, shoot, dribble, fake, defence (individual and team), team attack, and goalkeeper skills. Additionally, in accordance with the TGFU philosophy, the authors also included basic tactic goals (i.e., offensive tactics for the students' specific age and skill level) along with the abovementioned skill goals.

Each session was designed based on the typical TGFU structure: (a) mini-game (aimed at introducing students to specific tactical issues and technical objectives), (b) drill section (aimed at improving techniques and tactics), and (c) mini-game (with a similar purpose to the introductory mini-game). The final version of the unit was adopted after careful observation, redesign, adaptation and pilot implementation by the authors.

The students had two PE lessons per week, and lesson periods were 45 min long from bell to bell, as specified by the PE curriculum for grades five and six.

Data collection

Qualitative data were gathered from interviews and diaries. Each teacher participated in an individual semi-structured interview to record their perceptions of the TGFU model. These interviews were conducted within one week after completing the intervention. The interviewer, a trained PhD student, visited the school and interviewed each PE teacher one time. Each interview session lasted 50–60 min. The interviews were conducted in Greek, transcribed verbatim, and translated into English by the lead researcher for data analysis. The interviews were based on a common list of themes and questions. The initial questions were about the demographics of the teacher, while the rest of the questions were designed to get more insight into the teacher's thoughts about the TGFU model. Specifically, some examples of questions that PE teachers were asked to answer were: 'Did you experience any difficulties teaching using the TGFU model?', 'What was the impact of TGFU-based teaching on you as a PE teacher?', 'What did you like the most during the TGFU-based teaching?', 'What did you dislike during the TGFU-based teaching?', 'Was the delivery of the lesson (based on the TGFU) useful to your PE practice?', 'Do you intend to use TGFU model in the future?', 'Did you notice any change in students' interaction, cooperation and behaviour during the TGFU-based teaching?'

The participants kept diaries to provide additional data regarding their thoughts and students' behaviour during the TGFU unit. For each lesson of the unit, the diary included an open-ended question for general comments and five questions related to PE teachers' satisfaction with delivering the lesson, students' concentration, enjoyment, and participation during the lesson, and the lesson's difficulty level for students. They responded using a Likert scale ranging from one to five. The PE teachers were asked to fill in the diaries soon after each lesson. Participants' confidentiality and anonymity were ensured by replacing their names with their pseudonyms.

Data analysis

Following Braun and Clarke (2006) suggestion, a thematic analysis was conducted. More specifically, a total of 90 single-spaced pages (Times New Roman 12 font) of interview transcripts were created by the authors. Then, an inductive analysis was conducted (Terry, Hayfield, Clarke & Braun, 2017). More specifically, two of the authors carefully read the interview transcripts several times to be familiar with the text, and then they proceeded in parallel initial coding and proposed initial themes. Then, the third author acted as a 'critical friend' and reviewed the proposed codes and initial themes to make sure that they were aligned with the broader narrative of the transcribed interviews. When disagreements occurred between the authors regarding the proposed themes, through discussion they reached a consensual agreement about the most appropriate theme. After thorough consideration and review of the original themes, the definitive themes emerged. These were: (a) the effect of TGFU teaching on PE and students, (b) the effect of TGFU teaching on PE teachers, and (c) the difficulties of PE teachers with the application of TGFU and their intention to adopt it in their practice. The exact comments of the PE teachers that are referred to on each theme are included below in quotes. Statistical information or comments taken from the diaries are indicated with the abbreviation (diar).

Methodology rigor

The development of the research questions, data interpretation, and discussion of the findings were conducted from the perspective of ontological relativism and epistemological constructionism (Sparkes & Smith, 2014). According to the abovementioned perspective, the authors attempted to identify and present participants' subjective realities through their quotes (Creswell, 2014) and to interpret and present the phenomena from PE teachers' point of view (Sparkes & Smith, 2014).

Results

The effect of TGFU teaching on PE and students

All participants emphasized the contribution of the TGFU teaching model towards achieving the lessons' goals concerning the teaching of team games. For example, Johan noted that 'It is clear that students' understanding of the game and its rules was easier and faster. They were taking correct decisions in game situations and in general, their game play was much better'. Kate also reported that 'With this model (TGFU) I can deliver the lesson without problems achieving the curriculum goals for each lesson'.

The majority of the participants agreed that the TGFU model could be used to effectively teach team games,

even in lower elementary grades. For example, Oriana pointed out that ‘...TGFU is a teaching model appropriate for lower grades. I tried it with the third grade and I found that it helps students to understand and play the games better’. All participants observed that students’ participation in the program increased their willingness, interest and desire to participate in PE lessons. Interestingly, the majority of the participants attributed students’ willingness to the structure of the ready-made sessions. Specifically, the participants emphasized that the introductory mini-game attracted students’ interest and drew them to participate in it. Kate’s comment is characteristic of all participants’ views:

The fact that the lesson starts with a game makes it attractive and prompts the children’s interest to participate in it. It is a good way to get all kids to join in the lesson. They start excitedly, and you have no difficulty convincing them to participate in the lesson. Thus, the lesson is more enjoyable for students, and I perceive this as very positive.

Similarly, participants’ reports in diaries indicated that in 89 (69.5%) lessons out of 128 (100%) students’ concentration was ‘above average’ (48.4%) and ‘much higher than average’ (21.1%) (diar).

Remarkably, half of the participants noted that students were more involved during the educational process and that at the same time the teacher’s role was correspondingly less prominent during the lesson. The delivery of a PE lesson using the TGFU model provides a more active role for students. For example, Cristopher said that ‘In a way, the students were actively involved in the learning process. I was simply facilitating the learning. In my opinion, the structure of the TGFU model facilitated students’ increased involvement, creativity, responsibility, and interaction’. Furthermore, descriptive statistics showed that according to the participants, in 113 (88.3%) lessons out of 128 (100%), the students’ involvement during class was ‘high’ (diar).

Most of the participants stated that teaching with TGFU enabled low-skilled students to significantly improve their understanding, skills, and performance during the lesson. Consequently, they had more confidence, participated more and their classmates were more likely to accept them as equals on their team. For example, Aggie said:

I liked the fact that now the less-skilled students in PE gained more confidence. These children usually were rejected and marginalized during the games by their skilful classmates. Now, due to the philosophy of TGFU, skilful students should interact with them. This fact helps them to overcome the fear of being in the same team with their skilful classmates. Progressively they improve their performance and win the respect of their classmates! Therefore, these children got more involved in the game. I also found that they understood the game and its essence more easily.

All participants emphasized how cooperation and communication between students improved during the lesson. During the course, the students evolved socially and emotionally, became more effective in interpersonal relationships and developed communication skills. Johan stressed:

Their cooperation and teamwork improved. I also saw that little by little they started working much better together ... I noticed that they collaborated by helping each other. That was something I had not seen before. It seemed that now they cooperated and communicated easier with each other.

Participants’ reports revealed the common view that TGFU is a beneficial model for promoting students’ enjoyment. For example, Cristopher stated that ‘I noticed that the kids were very happy during the lesson. They were happy and satisfied. They really enjoyed the lesson’. Analysis of the participants’ reports in diaries confirmed this finding. More specifically, in 106 (82.8%) lessons out of 128 (100%), they reported that students enjoyed the lesson ‘very much’ and in 22 (17.2%) lessons ‘moderately’ (diar).

Finally, all teachers during interviews spontaneously compared TGFU with the teaching method they used to implement in a typical lesson. They categorically stated that the TGFU model is an ideal approach for teaching team games in elementary school. Joss stated:

Before, I was just trying to teach my students 2-3 basic things in each lesson, and most of times we allocated a few minutes at the end of the lesson to play the game. Now, I found that the students played more and liked it better too. They also learn the basic concepts of the game easier both technically and tactically, something which we have never been able to achieve before.

The effect of TGFU teaching on PE teachers

The majority of the participants stated that they enjoyed delivering the lessons. For example, Oriana reported that ‘I was very happy with my TGFU teaching. Using more game and less drills makes the lesson more enjoyable’. Likewise, diary analysis regarding teachers’ satisfaction on the implementation of the lesson showed that in 94 (73.4%) lessons out of 128 (100%) they reported being ‘satisfied’ (36.7%) and ‘very satisfied’ (36.7%) with the delivery of the lesson based on the TGFU model (diar).

Most teachers emphasized that teaching using TGFU helped them educate themselves through a different pedagogical perspective to improve their teaching repertoire and their skills in teaching team games. It caused them to reconsider their views on teaching, their role and their students’ role in the teaching process. Cristopher stated:

The delivery of the lesson through this model introduced me to an alternative teaching perspective... I adopted it, and it helped me to deliver the lesson better, more efficiently, and more attractive to students...; it certainly gave me more ideas on how to teach a team game better.

Likewise, Aggie argued:

The TGFU helped me to adopt a different teaching perspective and helped me to cope with difficulties that I usually meet in my everyday practice. Now, I spend more time and effort on planning my lessons. Hence, I am more optimistic about achieving the lesson's goals and promoting students' satisfaction. TGFU's philosophy of teaching through students' active participation in decision-making increases students' active time and provides opportunities for collaboration and interaction.

Most teachers also noted that their class management skills and communication with students improved. Johan said that 'The students from the team handball lessons onwards follow my instructions... they pay closer attention to me... They are keener on receiving my feedback, and our communication is better now'.

The difficulties of PE teachers with the application of TGFU and their intention to adopt it in their practice

All participants responded that they had nothing negative to say about the TGFU model. On the contrary, they clearly stated that they had only positive comments regarding TGFU. For example, Joss commented:

I did not find it difficult to deal with the delivery of the lessons through the TGFU model. This model made the lesson enjoyable for both the children and me. I have a very positive view of it, and at the end of the day, I am quite satisfied with it.

Moreover, participants' views in diaries regarding 'lesson's difficulty level for students' showed that in 47 (36.7%) lessons out of 128 (100%), they described the lesson as 'very easy' and in 75 (58.6%) lessons they described it as 'neither easy nor difficult' (diar).

All participants noted that it is stressful to develop a TGFU-based lesson that fits into 45 min. As Oriana explained, 'The model itself was super. However, it was hard for me to deliver a lesson based on TGFU within only 45 minutes'.

In addition, teachers' knowledge of the game being taught is a matter in question according to Kate, who argued that 'Because the goals of the lessons were a bit technical and my knowledge in team handball were limited, additional time and better preparation was required from me to deliver the lesson effectively'.

Moreover, the teachers' lack of coaching experience and the limited knowledge in team handball game was another issue in dealing with a TGFU-based lesson. Aggie pointed out that 'Because I have limited knowledge of the skills and tactics of team handball and no previous coaching experience, the managing of the time of the lesson was a tough task for me'. Johan highlighted the need for teachers' familiarization with the TGFU model. More specifically, he said that 'This model requires practice for someone to apply it effectively. The more you work on it, the better you become'.

Interestingly, all PE teachers reported that they would incorporate TGFU into their daily team game teaching. As Christopher stated, 'It is certainly a useful method for teaching games with very positive results. I will include it in my teaching repertoire without doubt'. All participants expressed their intent to recommend it unconditionally to their PE colleagues for teaching team games. Joss pointed out:

After using this model, I can definitely tell any colleague that he/she will see immediate results in teaching team games. I believe that he/she will make the lesson easier as well, and the students will be more pleased with the PE lesson.

Discussion and conclusions

The purpose of this study was to examine Greek PE teachers' (who lack previous playing or coaching experience with team games and are specialized in individual sports) perceptions of and experiences with the TGFU model in an authentic PE context and to examine their perceptions of the effectiveness of TGFU in teaching team games to 11–12-year-old students.

The findings of this study highlight the importance of the TGFU model in achieving the elementary PE curriculum goals regarding team games. PE teachers' reports indicated that implementing TGFU helped their students to learn the rules, the essence of the game, the basic skills and tactics and to improve their game play. These findings are aligned with PE teachers' reports and the findings of a previous study (Memert & Konig, 2007) suggesting that the TGFU model can effectively improve students' skills and game ability in elementary grades. PE teachers' reports also supported that the TGFU is an appropriate model for teaching team games in lower grades of elementary school.

It is worth noting the participants' common view that teaching with TGFU promoted students' enjoyment. In support of this finding, PE teachers in previous studies (Memert & Konig, 2007; Light & Butler, 2005) have been reported to have similar views. PE teachers also stressed that students showed increased interest and desire to participate in the PE lesson. They attributed these changes in students' attitude to the extended use of game in teaching and to the enjoyment that students experienced during the implementation of the TGFU model. This PE teachers' argument is aligned with the Prochaska, Sallis, Slymen and McKenzie (2003) suggestion that students' enjoyment in PE increases their participation and involvement in PE. A PE lesson that promotes students'

enjoyment should be a major objective for a PE teacher because such lessons increase the likelihood of lifelong involvement of students in physical activity (Alderman, Beighle & Pangrazi, 2006).

PE teachers stated that students had an active role during the lesson. One of the structural points of this model is to help students to have an active role in the learning process and especially to participate in decision-making. Arguably, Metzler (2011) has characterized TGFU as a student-centred teaching approach that influences students' motivation. Such a shift towards a more student-centred lesson is very positive for the lesson of PE and for students because according to Mosston (1996), the more involved the students are in the teaching process, the more positive changes will occur throughout their development.

Remarkably, most of the participants reported that less-skilled students benefited from TGFU. Specifically, the PE teachers reported that these students showed better understanding of the game and improved their confidence, participation and performance during the lessons. This finding agrees with the results reported by Spanish PE teachers for 'less-skilled' secondary students (Diaz-Cueto et al., 2010). Furthermore, Chen and Light's (2006) findings indicated the enthusiasm and satisfaction that Australian 'less sporty' elementary students experienced participating in PE lessons designed using the Game Sense approach. The participants in this study attributed this improvement to the structure of TGFU and especially the use of modified games that enables less skilful students to understand the essence of the game and to deal with the varied demands of the play.

This study's findings also imply that TGFU promotes students' cooperation and communication. This is mainly attributed to the TGFU structure, where during mini-games the students act as a team, interact with their classmates, and work together in solving game tactical situations. This is in line with the findings of previous studies (Memmert & Koning, 2007; Chen & Light, 2006; Light & Butler, 2005), which confirms that TGFU stimulates student interaction and the development of social relations.

However, the PE teachers reported that they confronted a number of difficulties during the implementation of the TGFU. More specifically, all participants argued that initially they found it very stressful to deliver the ready-made TGFU lesson plans in 45 min. This is a common finding in other studies, which have reported that the structure of the TGFU lesson is very demanding and requires from PE teachers to put a lot of effort to deliver it (Wang, 2013; Wang & Ha, 2013). Nevertheless, PE teachers' reports confirmed the suggestion by Diaz-Cueto et al. (2010) that familiarization with the TGFU model can help them to effectively deliver a TGFU lesson.

The effective implementation of the TGFU model requires the PE teachers to have experience and knowledge of the skills and tactical strategies of the team games (Wang, 2013). Moreover, the findings of Brooker et al. (2000) confirmed that the lack of playing or coaching experience in basketball was a disadvantage for PE teachers to implement Game Sense-based basketball lessons. Diaz-Cueto et al. (2010) reported that PE teachers specializing in individual sports without athletic or coaching experience in team games were facing issues and were less confident in effectively implementing the TGFU. In contrast, the participants in this study reported that lack of these skills did not prompt them to feel stress and lack of confidence in their ability to teach the game at any stage of the intervention. A rational explanation for this observation could be that elementary students are novices and hence PE teachers can cope with lesson demands at this level. In contrast, in a study by Diaz-Cueto et al. (2010) on secondary students reported that the PE teachers were possibly required to developed their knowledge and skills of team handball at an advanced level, which may have put more pressure on them to deliver the lesson. An additional explanation could be that the PE teachers in this study had to deliver ready-made lessons, which helped them to avoid additional difficulties and the creation of negative feelings towards the TGFU model.

The findings of previous studies (Diaz-Cueto et al., 2010; Wang, 2013), suggested that the difficulties that PE teachers cope with the delivery of TGFU might urge them to be less eager to adopt this model to their repertoire. In contrast, all PE teachers of this study emphasized their intention to incorporate TGFU into their teaching repertoire because they consider the abovementioned difficulties as challenges that they have to overcome in order to teach effectively a team game. Interviews revealed that participants were positively disposed to the model. The majority of the participants enjoyed the delivery of the lessons with the TGFU. They attributed it mainly to the extensive use of games, which is one of the TGFU features. Similar results were reported in Light and Butler's (2005) study.

It is worth noting that significant improvement of their class management skills and their communication with the students is reported by most of the participants of this study. In a previous study, PE teachers also stressed that TGFU helps the development of a strong relationship between students and PE teacher (Light & Butler, 2005).

Most of the participants mentioned that TGFU helped them to develop their teaching repertoire and improve their team game teaching skills. In addition, they experienced a different pedagogical perspective, which caused them to reconsider and change their mindset about teaching PE lessons. Such changes, for teachers with many years of teaching experience who have created a personal philosophy and an ideology about their work, are not negligible. PE teachers can change their attitudes and beliefs when they have tangible proof that a new instructional approach can be effectively applied in their everyday practice (Guskey, 2002). In this study, the PE teachers may considered the novel TGFU methodology as another perspective and not as a reversal of their beliefs about teaching PE (which may produce a negative attitude). This may have happened because the TGFU methodology was proposed as a useful and effective alternative for introducing students to team games by an

experienced with this model instructor and was presented through a process that combined theory and practice.

To summarize, this study revealed that the TGFU model is a useful and appropriate model for teaching team games in elementary school because it can help PE teachers to develop their students' skills, knowledge of the rules, and tactics and game play. Additionally, the participants emphasized that this model can promote students' enjoyment, involvement, and cooperation during the lesson. Interestingly, they reported that the TGFU model helped students who are less-skilled in playing team games to improve their skills, performance and understanding of the game tactics, and increase their confidence and involvement in the PE. Arguably, it can be said that all PE teachers in this study identified an array of benefits of the TGFU implementation and hence stated that they will adopt this model for teaching team games. Furthermore, all of them stressed that they will propose this model to their colleagues as an effective approach for teaching team games.

However, the PE teachers reported that they had to cope with difficulties in delivering the model, and they considered these difficulties as challenge and had to put more effort to effectively deliver the lessons. This finding confirms that teaching a PE lesson is a dynamic process that includes the interaction between the teacher and students with various characteristics in a complex context. However, the design of PE teachers' training in this study, which included not only theoretical knowledge but also teachers' practice with the model under the supervision of an experienced with this model instructor, was effective.

Participants' lack of knowledge and awareness of alternative PE teaching models such as TGFU is a result of a lack of on-site training over the last two decades. This finding stresses the urgent need for the Ministry of Education to organize PE teachers' on-site training and help them to expand their teaching repertoire. The findings of this study highlight that on-site training can be effective if delivered to a small number of PE teachers and provides them with opportunities for converting the theory into practice under the supervision of an experienced instructor.

A limitation of this study is the way it was designed, with only an intervention group. Using a control group may have led to even more reliable results. The low number of eight lessons of the intervention was another limitation. This number was chosen to comply with the restrictions of the Greek elementary PE curriculum, which allots eight lessons for each team game. A third limitation is the fact that the students' views were not examined. Nevertheless, the purpose of this study was the examination of the PE teachers' perceptions.

However, the strengths of this study are the examination of in-service elementary PE teachers' perceptions of specific characteristics and the fact that the study took place in an authentic elementary school setting. Intervention studies that take place in a real PE environment under the conditions of real lesson delivery are important (Brooker et al., 2000) and rare.

Further research is needed to corroborate these findings through studies investigating the students' game performance, attitudes and qualitative characteristics alongside researchers' field observations. Examination of PE teachers with different teaching experience or examination of different team games or different students' age constitutes an additional field of examination. Finally, in the context of this study and taking into account the limitations and any weaknesses in it, it seems that TGFU is a suitable and effective model for Greek elementary PE and for teaching team games to 11–12-year-old students.

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