Competition to Promote Teaching and Improving Nursing Skill Using the Team Game Tournament Method with Learning from Competition

Yu Yuan Fang（✉ yuan0609@ukn.edu.tw）

 UKN: University of Kang Ning   https://orcid.org/0000-0001-6377-9427

Yish-Yuan Lin

 National Taipei University of Technology

Li-Ting Lu

 University of Kang Ning

Abstract

The acquisition of nursing skills is one of the essential learning competencies for nursing students. One way of promoting teaching through competitive play this is via the team game tournament (TGT) method, a teaching strategy based on the team-based learning approach that creates a lively and fun tournament-like atmosphere to facilitate learning. A pedagogy built on the theoretical foundations of the TGT's composition and principles, the activities of a three-week medical-surgical nursing technology course were formulated to include teaching plan design instructions, TGT steps and procedures, and skill assessment tools. After testing the TGT method on a group of 48 students, through pedagogical design proved that it could enhance learning motivation and participation, cultivate critical thinking, and facilitate research tool development. While this learning method has fixed rules for learning content, it can still effectively hone the cognitive and critical thinking skills of students and enable them to become better nurses.

Background

Nursing students are expected to be active learners capable of recognizing and constructing knowledge collaboratively. If they can acquire knowledge more autonomously, teachers can spend less time transferring knowledge unilaterally and improve their performance in clinical practice and theory classes [1, 2]. As such, team-based learning (TBL) is a group teaching strategy that has recently gained popularity nationally and internationally [3]. Group learning is defined as the process of mutual learning in which participants freely share ideas, feelings, and attitudes about a particular topic, resulting in knowledge growth and attitude change [4].

Collaboration in healthcare is crucial; it refers to professionals taking on complementary roles and sharing responsibility for problem solving, decision making, and implementation of patient-care plans. TBL is seen as one way to equip healthcare professionals with the teamwork and communication abilities they need to broaden and strengthen each team member's knowledge and skills in a collaborative manner and to build a team community [5-7].

Professor Larry Michaelsen developed TBL at the University of Oklahoma in the late 1970s [8, 9]. It adopts a collaborative team approach to traditional classroom teaching and incorporates problem-based learning (PBL) to promote active problem solving in a team. It involves collaborative learning and two-way knowledge transfer between teachers and students divided into small groups in a large class setting where teachers and students collaborate to achieve curriculum goals with clear learning objectives [8, 10]. The teacher assists and enables students to work in teams to enhance knowledge development, skills, and attitudes, thereby improving their teamwork and increasing individual participation.

TBL be used in classrooms in conjunction with structured topic-oriented activities to enable students to delve deeper into the content and to easily understand how to apply their learning, thereby improving academic performance while increasing learner responsibility and satisfaction [3, 11]. It comprises a

variety of learning strategies to enhance learning participation such as student team-achievement division (STAD), team game tournaments (TGT), the jigsaw puzzle method, team-accelerated instruction, cooperative integrated reading and composition, learning together, and group investigation [9, 12]. The TGT method involves creating a lively and engaging tournament-like atmosphere to stimulate team progress, which is ideal for teaching in scenarios where there are single and objective answers with clear definitions. This method can boost student motivation and promote their growth through their competitiveness in group learning, as well as increase their active participation [9, 13].

Both decisive thoughts and actions are competencies required during the nursing process, which must be cultivated over the course of nursing education [14], since professional competency is essential to earning the trust of patients whom nursing students are expected to care for in clinical practice. In addition to these competencies, other nursing skills such as how to provide safe care are also taught in schools through classroom demonstrations in simulated hospital settings [15-17]. Currently, most nursing students learn all this through demonstrations and video presentations from the faculty and self-managed group-studies and simulations. Since good nursing requires a combination of theoretical knowledge and practical skills, it is common for students to follow a step-by-step process before repeating the actions independently. Therefore, Johnson and Johnson [18] and Lin [19] claimed that interaction and discussion among team members, shared responsibility for success and failure, assessment, and an atmosphere of inter-team competition can help enhance learning effectiveness.

While there have been numerous studies on the application of TGT in physical education in Taiwan and internationally [13, 20, 21], no study has focused on its use in the education of nursing competencies. Therefore, in the present study, this study aimed to examine the theoretical background of the TGT approach and formulate a systematic set of teaching strategies and cooperative group learning activities based on the TGT approach in the context of nursing education.

What Is Nursing Competencies Education?

Nursing students must know how to collaborate with others, a skill they can develop through interpersonal experiences. General clinical nursing competencies refer to professional knowledge—basic medical knowledge, knowledge of various diseases, and nursing care, which are all holistic and integrated concepts. Presenting case studies and developing skill-based activities on various health-related factors and issues can effectively enhance students' ability to perform nursing tasks in clinical practice [2]. Thus, nursing competencies can be defined as the students' ability to develop the necessary skills and to expand their professional knowledge. Demonstrating this knowledge through their acquired skills is highly valued. As such, the ability to integrate it into clinical practice has always been a necessary component of nursing education.

In the nursing field, summative assessments are often utilized to examine learning activity components and the functioning of others, as well as to assess the extent to which goals are met to evaluate the effectiveness of students' technical learning. Currently, most schools employ checklists or rating scales to assess the skills of their students [15, 17]. Students also conduct an objective structured clinical

examination (OSCE) and mini-clinical evaluation exercise (mini-CEX) before graduation to evaluate the depth and proficiency of the students' clinical nursing skills [22, 23].

The Royal College of Physicians pioneered the use of the direct observation of procedural skills (DOPS) method to assess trainees' clinical skills, which include their relevant knowledge, abilities, proficiency, communication skills, and patient care/professionalism [24]. The structured and columnar scales used to construct the technical assessment checklist, OSCE, or mini-CEX all incorporate the DOPS method to directly observe and assess the actual operational details. It uses the structured scales formed by simple operational technical assessment items and teacher feedback to evaluate students' overall performance [24-26].

Theoretical Framework of the TGT Method

The four basic elements key to the successful implementation of the TBL approach are teams, accountability, feedback, and assignment design. Students must organize and manage their teams effectively, be responsible for the quality and quantity of individual work and teamwork, and seek frequent and immediate feedback, all while engaging in quality teamwork and the interactive process to promote learning and team growth [3]. The TGT method—which is based on the TBL approach—was created by DeVries and Slavin in 1975, in which students are divided into teams and assigned tournament tables to heterogeneously group different abilities and homogeneously learn similar ones [27].

The TGT method is a cooperative learning method that provides opportunities to develop team interaction and collaboration skills, sets achievement goals in the classroom, and empowers students with face-to-face collaboration across teams, thus, enhancing their sense of achievement, engagement, and motivation [18, 28, 29]. Slavin and his team were inspired by the works of Vygotsky and Piaget to refine collaborative learning, while designing activity processes [27]. As such, Slavin et al. [27] built their work and started using motivation, social cohesion, cognitive development, and cognitive refinement as four theoretical directions to achieve positive cooperative learning effects in 1976. Students must cognitively refine existing concepts in a non-monolithic way [29].

There is limited research on this teaching method globally, as well as in Taiwan. In one such study on the method, Chien et al. [30] found that students were exposed to an information-integrated curriculum, and they were able to explore different avenues to deepen and broaden their existing knowledge. They found this learning method enjoyable, lively, interesting, and helpful in understanding the text. This in turn enhanced their learning interest and enabled them to complete meaningful online courses. Those who would normally drop courses like English, mathematics, anatomy, and physiology after experiencing difficulties discovered that a competitive yet enjoyable approach boosted their motivation to participate in the course, their insight and sensitivity, and their tolerance of their teammates, even if their progress was somewhat limited [31-33].

Studies on activities formulated to develop specific skills have also indicated that a tournament-centric curriculum is effective in enhancing competencies such as skill proficiency, useful learning, peer interaction, cooperative/social behaviors, games/joint activities, trust/respect, and intimate/positive relationships [20]. It can also help reduce conflict and aggressive interpersonal interactions [20]. Although the skill level of students cannot be fully reflected in the teaching, teachers must nonetheless enhance their learning motivation by teaching the relevant rules, knowledge, and skills. They must also promote the team members' interest in participation and ensure that there is sufficient time for skill practice [13].

In the heterogeneous grouping and homogeneous competition method, both high and low achievers are coached and mentored. Furthermore, both sides are encouraged to communicate, think, accept the opinions of others, and motivate each other to enhance interpersonal interactions and develop critical thinking skills [13, 20, 21, 34]. The abovementioned studies suggest that competitive contexts can stimulate students' motivation to learn, improve their academic performance, and enhance learning effectiveness for various difficult courses and skills.

TGT Method Composition and Principles

With a learning-based education concept that considers students' individual learning and develops cooperation and interaction among them, the cooperative learning composition and principles according to Slavin [29] are as follows:

Class Presentations

Class presentations begin with a lesson demonstration and explanation. This method emphasizes group discussion with a focus on its manner and process.

Teams

Four- to five-member teams are deemed ideal. They can be formed with either of the following criteria in mind: major courses, minor courses, academic achievement, grade level, cultural background, gender, personality traits, skill and expertise, familiarity with the subject, and learning motivation with regards to peer learning and teamwork. When students bring diverse perspectives to the activity, their desire to achieve a consensus will be conducive to a cooperative performance [3].

Games

The questions in the game are designed based on the data of the presented activity to test each team member.

Competitions/Tournaments

The process must emphasize cooperation, team achievement, and a competition with a point system. It covers:

1. A series of carefully designed arrangements, learning groups, subject competitions, team awards, and transfers or impacts.
2. At the beginning of the course, the teacher informs all the students that cooperative learning of TGT will be implemented, and the students are instructed to form teams and move toward the competition table.
3. The table setup is announced to the students at the start of the tournament. The activity is a competition on the table between students of comparable ability from different teams.
4. The winning and losing teams are revealed to facilitate evaluation.
5. Competitors are divided into teams according to their ability, with those of comparable ability competing to learn cognitive and affective skills, as well as the value of competitive sports, together.

Method And Application

Case Application

We employed a three-week technical course on medical-surgical nursing skills and techniques. Each class had 48 students, who were divided into eight six-member teams based on the composition and principles of the TGT method. The steps are as follows:

Designing a Lesson Plan

A lesson plan is a blueprint, typically presented in written form, that teachers use to plan and design activities prior to teaching. The implementation of teaching activities requires teachers to engage in professional planning and designing of activities and processes before teaching and creating a unit teaching plan based on the teaching unit content, teaching objectives and materials, concept knowledge of the units to be taught, students' learning experience, assessments, and estimated teaching time [20, 28, 35]. The lesson plan comprises: course title (medical-surgical nursing skills and techniques), key technique (e.g., steam inhalation), target audience of the lesson (3rd year students of a 5-year college program), duration (3 weeks), course objectives (including development of cognition, skills, and attitudes), and teaching activity design and flow.

Implementation Procedure and Flow

Based on the lesson plan, activity flow, and timing, the activity resembles traditional teaching at the start, which includes whole class teaching. This is followed by group learning, the table tournament, and the subsequent learning reward (Figure 1). The steps were as follows:

(a) Whole-class explanation and demonstration: The teacher prepared the learning material and introduced the course. Students were required to download the learning material on the platform designated by the school and bring it to class to demonstrate their skills and to explain the material's application.

(b) Heterogeneous grouping of students: Students were divided into eight teams of six based on their performance in basic nursing competencies in the previous school year, and each team was assigned a symbol.

Insert Figure 1 About Here

(c) Ability-wise grouping: Students practiced their nursing skills independently and were divided into three groups based on their abilities—high, medium, and low—with each group having its own symbol and serial number (Figure 2).

Insert Figure 2 About Here

(d) Tournament table: Each member was assigned to the appropriate competition position based on their abilities and group symbol, and the same teacher assessed the team. A total of six tournament tables, each consisting of eight participants, entered the competition (Figure 3). After the first game, they would return to their groups to discuss and practice. Depending on the results of the first stage, the team would make adjustments before advancing to the second stage (Figure 4).

Insert Figure 3 About Here

Insert Figure 4 About Here

(f) Student performance evaluation: As per the scoring criteria (see Table 1), each team's score was assessed for group recognition and the appropriate awards [29].

Table 1. Distribution of Points at Each Tournament Table

Scoring criteria	Points	Scoring interpretation
1st place	5	Highest score at the competition table
2nd place	4	2nd highest score at the competition table
3rd place	3	3rd highest score at the competition table
> 65 points	2 each	Basic passing score
Finish counseling and pass	1 each	Passing the basic score of evaluation after remedial teaching

Note. Total points must be at least 65.

Assessment Tools

Beginning of each semester, the course teachers and registered clinical nurse conduct a revision of the content of the technical rating scale. Practice on a simulated patient in a technical classroom. Teaching strategies at all three stages—cognition, motor connection, and automation—promoted the teacher's skills and students' ability to learn effectively. The current assessment of the effectiveness of skill learning was based on a step-by-step checklist of competencies in conjunction with the DOPS method [24], which served as the basis for student evaluation.

Results And Discussion

Results

This study aimed to develop a preliminary teaching methodology to foster nursing skills, based on Slavin et al.'s [27] theoretical concepts and competition-related research [20, 30]. This teaching strategy was applied to a medical-surgical nursing technology course, part of a program that included competency assignment in small groups, team discussions, competency competitions, and awards. After being validated among a group of 48 students, this method was found to enhance learning motivation and participation, cultivate critical thinking, and facilitate research tool development.

Discussion

While knowledge of nursing can be readily acquired through books and the Internet, skill acquisition requires face-to-face interaction in a variety of clinical settings. Skills should not be taught in a unidirectional manner, where the sole focus is on one-way knowledge transmission, the emulation of individual movement skills, and the mere repetition of practiced movements. The nursing skills need to be recognized and then applied to the patient. An overemphasis on the individual has not been shown to stimulate interest in learning, which can be addressed through a variety of teaching methods [13, 21]. Appropriate and diverse teaching methods can inspire and enable students to adopt independent learning strategies and demonstrate the performance outcomes of a specific learning. Therefore, the application of the TGT method in teaching nursing competencies can be summarized as follows:

Facilitating Motivation and Participation

Cooperation facilitates peer learning, whereas competition provides an opportunity to win something or outperform others. As a result, cooperation and competitiveness in combination can help enhance student participation and motivation in class [13, 20, 29, 32, 34]. Skills are acquired abilities that need to be honed through continuous practice, and the essence of the TGT method is not relying on one-time results as the only learning outcome. While practical experience improves skills, the tournament makes the course interesting and facilitates a fun curriculum design, thus enhancing learning motivation and teaching effectiveness through classroom participation.

Critical Thinking Training

With the TGT method, students are responsible for their own learning. They learn to take responsibility and apply strategies to transform peer interaction by formulating a cooperative-competitive-thinking strategy for learning [12, 19]. Each student in the TGT method gets the opportunity to contribute to the team, learn the content through the technical scoring criteria, and come up with strategies for review. In the process, contestants who are on the same level are divided into three groups that compete against one another; each group earns a point if its members are able to work collaboratively.

High-achieving students are seen to encourage and assist their low-achieving teammates, while the latter strive to improve their individual performances when they realize that it is a factor contributing to the team's performance [20]. Since nursing places huge importance on clinical judgment, designing a sound teaching plan based on the TGT method is a highly recommended teaching strategy.

Value of the Study

Our study shows that the TGT method managed to successfully enhance student participation, peer interaction, group interaction, and learning motivation, particularly in fun and active courses [13, 32]. TGT is used in skill-related courses, primarily in competitive courses, such as physical activity or competitive chess, because external competition is necessary, and curricula are designed to foster critical thinking skills. Thus far, research in this area has generally involved qualitative analyses and self-administration of appropriate scales supported by existing literature. First, a qualitative study was performed using post-learning student interviews, followed by the implementation of the Delphi Method for experts and a statistical analysis of a multi-round questionnaire [36].

The nursing skills course has several stages, multiple skills item and different classes with the same skills as the starting point. Learning through competition is a way of learning. The TGT method provides an appropriate environment for students to participate in and identify with the learning situation. However, teachers should be aware that competition can also create conflict between teams and affect interpersonal relationships [21].

Conclusions

This style of pedagogy is designed based on the theoretical foundations of TGT and incorporates a set of systematic teaching strategies and cooperative learning groups for the purpose of application in nursing competencies education. Related research has shown that the TGT method can enhance student participation in the course, peer interaction, group interaction, and learning motivation, particularly through fun and active courses. The medical-surgical nursing skills and techniques courses provide a disease-care demonstration, which emphasizes that students can earn the trust of patients and their families only if they are skilled. The current healthcare environment emphasizes coordination and cooperation. To foster the same, the TGT method is important because, apart from the aforementioned skills, it encourages communication and problem solving. The method of teaching is informal test, through competition to achieve students' skills, then in the future through different stages, different classes or different technical projects to study and compare. Following the transfer of knowledge and

skills, the teacher also places more emphasis on the individual learning process and stimulates students' participation and initiative to learn. Thus, students can be effectively trained in the required core competencies of the nursing profession through this teaching method.

Abbreviations

TBL: Team-based learning; TGT: Team game tournament; PBL: Problem based learning; STAD: Team-achievement division; DOPS: Direct observation of procedural skills; OSCE: Objective structured clinical examination.

Declarations

Ethics approval and consent to participate

Not applicable.

Consent for publication

Not applicable.

Availability of data and materials

Not applicable.

Competing interests

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Authors' information

1. FYY, RN/PhD Candidate, Lecturer, University of Kang Ning, Department of Nursing /National Taipei University of Technology, Graduate Institute of Technological & Vocational Education; 2. LYY, Assistant

Professor, National Taipei University of Technology, Graduate Institute of Technological & Vocational Education, 1, Sec. 3, Zhongxiao E. Rd., Taipei 10608 Taiwan, Tel: +866-2-2771-2171 ext. 4036; 3. LTL, Associated Professor, Kang Ning University, Department of Nursing, No. 137, Alley 75, Sec. 3, Kang Ning Road, Neihu District, Taipei City 11485, Taiwan, Tel: +866-2-2632-1181 ext. 200

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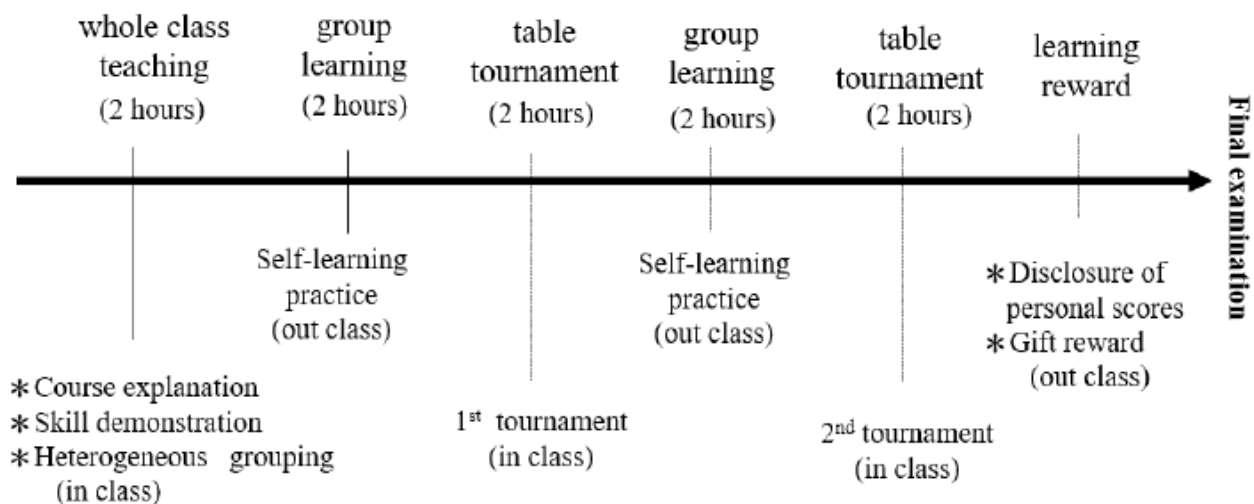
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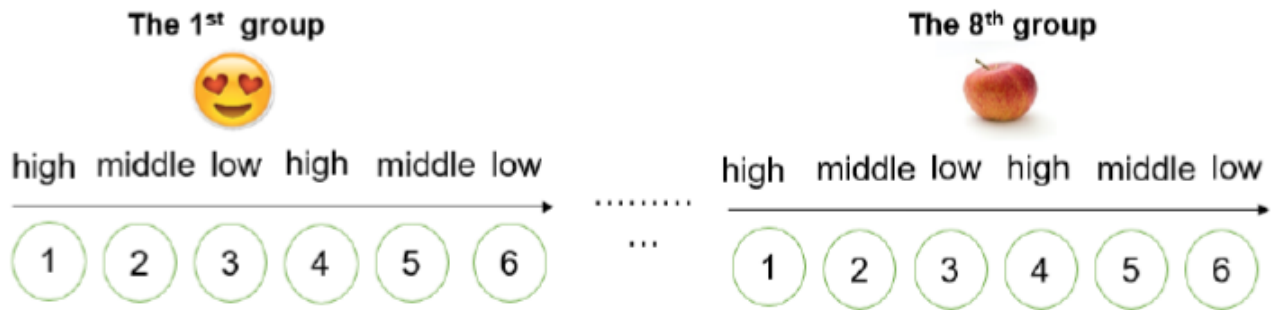Figure 1

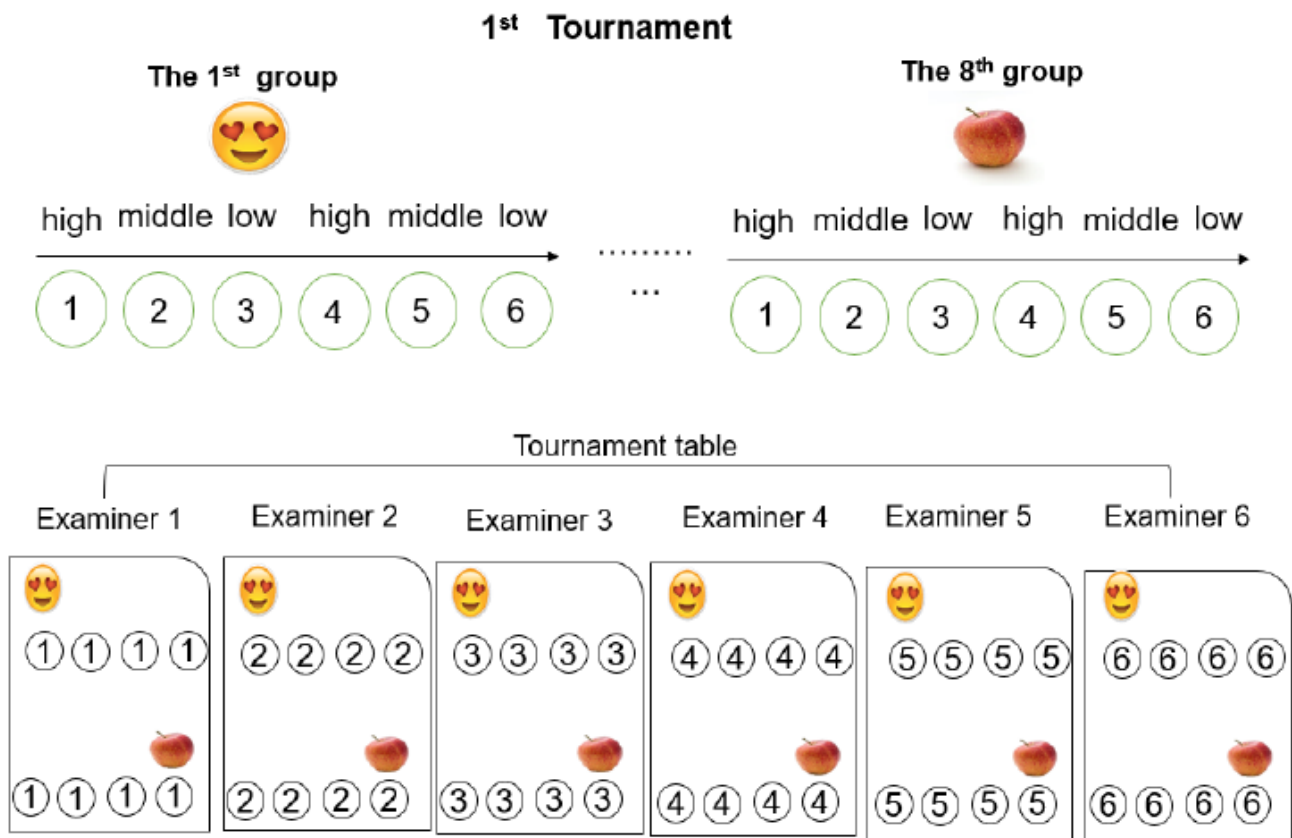# Structure and Flow of the Course

The 1st group

high middle low high middle low

(1) (2) (3) (4) (5) (6)

The 8th group

high middle low high middle low

(1) (2) (3) (4) (5) (6)

Figure 2

Grouping Based on Abilities

1st Tournament

The 1st group

high middle low high middle low

(1) (2) (3) (4) (5) (6)

The 8th group

high middle low high middle low

(1) (2) (3) (4) (5) (6)

Tournament table

Examiner 1	Examiner 2	Examiner 3	Examiner 4	Examiner 5	Examiner 6
①①①①	②②②②	③③③③	④④④④	⑤⑤⑤⑤	⑥⑥⑥⑥
①①①①	②②②②	③③③③	④④④④	⑤⑤⑤⑤	⑥⑥⑥⑥

Figure 3

Tournament Table Allocation at the First Stage

2nd Tournament

The 1st group 😍

high middle low high middle low

1 4 2 5 6 3 ... ...

The 8th group 🍎

high middle low high middle low

5 1 3 4 2 6

Tournament table

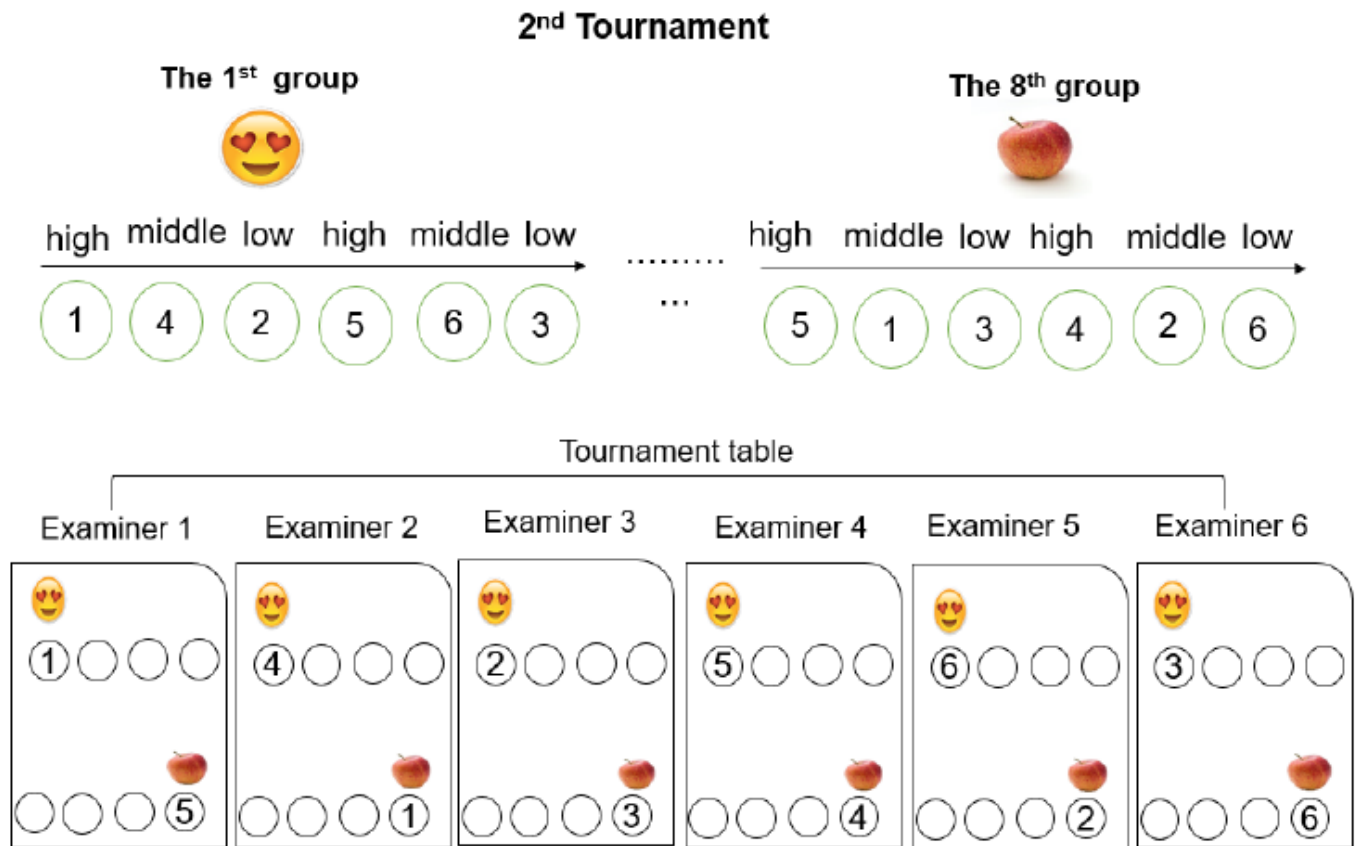| Examiner 1 | Examiner 2 | Examiner 3 | Examiner 4 | Examiner 5 | Examiner 6 |

Figure 4

Tournament Table Allocation at the Second Stage