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Judo and *kata* teaching: Can personal expression be addressed before formal expression?

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Abstract

Background. *Randori* (free practice combat exercise) and *kata* (formal codified practice exercise) are complementary in learning judo. Traditionally taught by imitation (relationship between *sensei* and *senpai/kohai*; SHU phase of the SHU-HA-RI method) and after *randori*, *kata* are often perceived as an obstacle for promotion to a higher rank. Active teaching methods may help us in changing this perception.

Aim. A personal expression or personal free practice of concepts of *kata* may precede formal expression or formal codified practice in learning *kata*.

Methods. From 2011 to 2018, the personal expression based on the concepts of *gonosen-no-kata* (*kata* of counterattacks) was analyzed in 38 bachelor-level students at the University of Montpellier (France). Subjects mastered the *nage-no-kata* (mandatory for 1st *dan* black belt) but were not knowledgeable in the *gonosen-no-kata* (mandatory for 4th *dan* black belt). During 4 hours of class, they had to perform freely all or part of 4 series: 3 different counterattacks after 3 different attacks, 1 identical counterattack after 3 different attacks, 3 different counterattacks after 1 identical attack, and 3 free counterattacks after 3 free attacks.

Results. Subjects performed 95 series containing 282 attacks/ counterattacks: 231 attacks and 47 counterattacks corresponded to those codified in the *gonosen-no-kata*, reflecting the students' insights. Techniques banned in competition by the International Judo Federation in 2011 were not used by the students. No significant differences were found between women and men in choices of defense used for dodging and *sen-no-sen*, and in techniques used for counter attacking. Men and women did, however, significantly differ in blocking attacks.

Conclusions.

- Active teaching methods for learning *gonosen-no-kata* are valuable and might be expanded.
- Students are creative in choosing techniques.
- Personal expression may precede formal expression in learning *kata*.

There may be unexpected challenges for French judo technical staff in developing methods to include *gonosen-no-kata* in warm-up and techniques.

Key words: active teaching methods, chlorophyll pedagogy, combat sport, *kata*, *Kodokan*, martial arts, motor learning, *randori*, self-defense, *shu-ha-ri*.

Résumé

Contexte. Le randori (exercice de combat libre) et le kata (exercice formel codifié) sont complémentaires dans l'apprentissage du judo. Traditionnellement enseignés par imitation (relation entre sensei et senpai/kohai ; phase SHU de la méthode SHU-HA-RI) et après le randori, les kata sont souvent perçus comme un obstacle à la promotion à un grade supérieur. Des méthodes d'enseignement actives peuvent nous aider à changer cette perception.

Objectif. Une expression personnelle ou une pratique personnelle libre des concepts de kata peut précéder l'expression formelle ou la pratique formelle codifiée dans l'apprentissage des kata.

Méthodes. De 2011 à 2018, l'expression personnelle basée sur les concepts du gonosen-no-kata (kata de contre-attaques) a été analysée chez 38 étudiants de niveau licence de l'Université de Montpellier (France). Les sujets maîtrisaient le nage-no-kata (obligatoire pour la ceinture noire 1er dan) mais ne connaissaient pas le gonosen-no-kata (obligatoire pour la ceinture noire 4ème dan). Pendant les 4 heures de cours, ils devaient exécuter librement tout ou partie de 4 séries : 3 contre-attaques différentes après 3 attaques différentes, 1 contre-attaque identique après 3 attaques différentes, 3 contre-attaques différentes après 1 attaque identique, et 3 contre-attaques libres après 3 attaques libres.

Résultats. Les sujets ont effectué 95 séries contenant 282 attaques/contre-attaques : 231 attaques et 47 contre-attaques correspondaient à celles codifiées dans le gonosen-no-kata, reflétant les idées des étudiants. Les techniques interdites en compétition par la Fédération internationale de judo en 2011 n'ont pas été utilisées par les élèves. Aucune différence significative n'a été trouvée entre les femmes et les hommes dans les choix de défense utilisés pour l'esquive et le sen-no-sen, et dans les techniques utilisées pour la contre-attaque. En revanche, les hommes et les femmes présentent des différences significatives en ce qui concerne le blocage des attaques.

Conclusions.

- Les méthodes d'enseignement actif pour l'apprentissage du gonosen-no-kata sont valables et pourraient être développées.

- Les étudiants sont créatifs dans le choix des techniques.

- L'expression personnelle peut précéder l'expression formelle dans l'apprentissage du kata.

Le personnel technique du judo français pourrait être confronté à des défis inattendus dans le développement de méthodes visant à inclure le gonosen-no-kata dans l'échauffement et les techniques.

Mots clés : méthodes d'enseignement actives, pédagogie chlorophyllienne, sport de combat, kata, Kodokan, arts martiaux, apprentissage moteur, randori, autodéfense, shu-ha-ri.

Introduction

Two exercises to practice judo: *randori* and *kata*

Kano Jigoro revamped and reorganized the practice of *jujutsu* exercises in a new perspective of physical education under the name of *Kodokan judo* in 1882. He rationally structured this method of physical training on moral considerations with the philosophical knowledge acquired at university [Hernandez 2008]. Traditionally, the training of the *judoka* is done by the practice of *randori* and *kata*. The first *kata* were created at the end of the 19th century (1885) and established in their final form at the beginning of 20th century (1906), and "*randori* and *kata* are two principal ways of practicing Judo" [*Kodokan Judo Institute*, 2014].

"I began the instruction of Judo with training in *randori* and *kata*. ... *Randori*, meaning 'free exercise' is practiced under conditions of actual contest. ... both parties must always be wide awake, and be endeavoring to find out weak points (or create them) of the opponent, being ready to attack whenever opportunity allows. ... each contestant cannot tell what his (her) opponent is going to do, so each must always be prepared to meet any sudden attack by the other. ... *Kata*, which literally means 'form', is a formal system of prearranged exercises, including hitting, cutting, kicking, thrusting, which are taught in *kata* and not in *randori*, because if they were used in *randori* cases of injury might frequently occur." [Kano 1932].

Especially during the second half of the 20th century judo has developed all around the world. Judo today is mostly known as an Olympic sport, but also as a method of physical, intellectual and moral education. The International Judo federation (IJF) in 2021 had 206 member countries [IJF 2021] who consider both pedagogical principles: *Randori* (form of free expression), and *kata* (formal expression).

Two options for promotion to a higher rank of black belt dan in judo (*randori* and *kata*) reveal three modes of expression.

Even if there are small differences between countries (age to obtain black belt *dan* ranks, delays for promotion to a higher *dan* rank, level of competition to score points in contest), we can consider that worldwide both components are evaluated in the process of promotion to 1st *dan* black belt and higher *dan* ranks (2nd *dan* to 6th *dan* black belt or above).

Different countries propose different options to obtain a higher *dan* rank:

1. Competitive option:

- by scoring points through winning official competitions or special black belt promotion tournaments (by competition is meant the conditions of actual contest whose aim is to win the contest, i.e. practicing *shiai*)
- to present one or several *kata* specific to the *dan* rank pursued (i.e. the higher the *dan* rank, the higher the number or the complexity of the *kata* that need to be demonstrated).

2. Technical option:

- by scoring points in combat (conditions of actual contest whose aim is to attack and score but without being focused on the gain of the contest, i.e. practicing *randori*)
- to present one or several *kata* specific to the *dan* rank pursued (i.e. the higher the *dan* rank, the higher the number or the complexity of the *kata* that need to be demonstrated)
- to present specific knowledge through: *keiko* (training exercises); throwing techniques and control techniques on the ground (pins, chokes and joint locks).

Both *dan* rank promotion options (competitive and technical) or their equivalents are detailed on the websites of judo federations of several countries. For example, in the United Kingdom, the guide to technical grade examination mentions:

"Candidate is expected to have knowledge of many of the key points of the *waza* (technique) including: the *waza* in its traditional form; *kuzushi* (balance) and an alternative *kuzushi*; *tsukuri* (preparatory action for attack) and an alternative *tsukuri*; *renzoku* (feint) with the selected *waza* as 1st attack; *renzoku* with the selected *waza* as final throw; *renraku* (blocking or avoiding) with the selected *waza* as 1st attack; *renraku* with the selected *waza* as final throw; *kaeshi* (counterattack) using the selected *waza* as a counter and also as to how the *waza* may be countered; most suitable grip and an alternative grip; any other information such as *uchikomi* (repetition exercise using *kuzushi* and *tsukuri*) drills" [British Judo Association, 2020]

In resume, three modes of expression exist in judo for promotion to a higher *dan* rank:

1. Free expression during combat
2. Formal expression during *kata*
3. Personal expression during the presentation of a *judoka*'s individual knowledge.

Elements about history, contents, difficulties experienced, method of teaching to allows us to highlight problems in the teaching/learning of *kata*.

Historical evidence may show that *randori* are more important than *kata* for learning judo:

- "Mental training in judo can be done by *kata* as well as by *randori*, but more successfully by the latter" [Kano 1932].
- Some *kata* allow the preservation of dangerous or prohibited techniques in competition. "The training in hitting, kicking, cutting and thrusting is taught in *kata* and not in *randori*" [Kano 1932].
- Kano's first *Tenjin shin'yo-ryu jujutsu* master Iso Mataemon "adhered strongly to the method of *kata* as a training for combat (but it was concerning) techniques for dealing with attacks by weapons" [Goodger 1981].
- A compilation of the history of French judo shows that there was a long period in France, during which *kata* was not necessary for rank promotion to 1st *dan* black belt [Thibault 2011].
- Otaki and Draeger [1990] have proposed a diagram that shows the chronological perception of *kata*. In 1878 judo could be represented by a disc containing equal parts of *kata* and *randori*. However, judo evolved, and from 1888 to 1938, the main part of the judo disc was taken up by *randori*, with *kata* filling up a smaller area. With the sportivization of judo (first world championship in 1956) two trends appeared. For the Japanese tendency of judo, the main part of the judo disk became *shiai* taking up the *randori* area of the disc, with the remaining smaller area devoted to *kata*. However, in the West, although the main part of the disc also became *shiai*, the smaller *kata* disc though having been pushed back now joined outside the main disc.

Thus, *kata* seemed to appear less important than *randori* or competition, and older techniques and techniques using weapons had less relevance to either free combat or competition.

The contents concerning the choice of techniques in *kata* are rarely, poorly or not precisely explained:

- "books on judo *kata* have been mainly concerned with describing the actual techniques of throwing and grappling. They have concentrated mainly on the role of *tori* (the *judoka* throwing down the other, i.e. *uke*), although most of the role of *uke* is very vital to *kata*" [Otaki, Draeger 1990].
- *Nage-no-kata* "is made up of five series of three representative techniques selected from (the different categories of throwing techniques) *te-waza*, *koshi-waza*, *ashi-waza*, *ma-sutemi-waza* and *yoko-sutemi-waza*" [Kodokan Judo Institute, 2014].
- "There are no backward throws contained in *nage-no-kata*, and the *katame-no-kata* is only performed on the right side" [Damblant 2012].

The ritual, the order of techniques and the different styles from different school of formation, are usually well described. The representatives techniques in the *nage-no-kata* do not explain the lack of backward throws such *o-soto-gari*, *ko-uchi-gari*, *o-uchi-gari*. We note the recent introduction of *kodomo-no-kata*. This *kata* has been added to the list of other officially approved *kata* on the *Kodokan* website, but to date the referring page remains empty. This *kata* is intended for children. The French version (a video with logos of the *Kodokan* and IJF) shows that it includes backward throws [French Judo Federation (FFJ), 2020a].

The signification of the hip throws series in *nage-no-kata* could explain a logical possibility for the building of this second series, but drawings realized 4000 years BP in the graves of Beni-Hassan (Egypt) or the painting on the Greek vases realized 2000 years BP show that many throws were known and used during combat. Among these drawings we can recognize what we call today in judo: *o-uchi-gari*, *ko-soto-gari*, *ura-nage*, *sumi-gaeshi*, *te-guruma*, *harai-goshi*, *uchi-mata*, cf. Figure 1 [Maspero 1910] or *koshi-guruma*, *kata-guruma*, *ura-nage*, *kami-shihogatame* cf. Figure 2 [Champollion 1870]. Other pictures exist in other publications [Kiner, Guenet 1999; Yalouris 1982]. That being said, *nage-no-kata* nowhere pretends to be the first or original to present the techniques it contains. Rather, it simply introduce show throws in judo are tied in with the concepts of *kuzushi* and *tsukuri*, as applied according to the maxim of *seiryoku zen'yo* [most efficient use of energy].

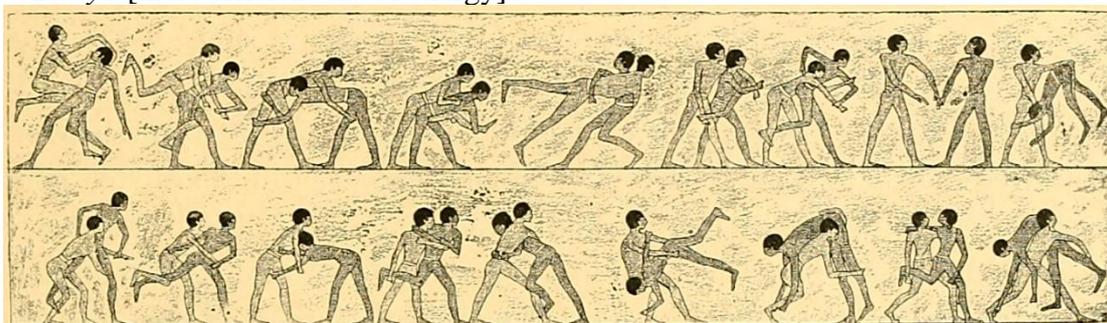


Figure 1. Drawings from the book "*The dawn of civilization : Egypt and Chaldea*" p307



Figure 2. Drawings from the book "*Monuments de l'Egypte et de la Nubie Tome IV*"

The "WHAT" is specified while the "WHY" is (often) left out.

Judo experiences difficulties in teaching one of its main components, i.e. the *kata* part:

- "*Kata* sometimes has become the drudgery or even the unavoidable obstacle to pass the black belt test and higher black belt ranks" [FFJ, 2010a].
- "A boring obligation, a kind of superfluous formality" [Jazarin 1974].
- "*Kata* conjures up thoughts of anxiety, alarm, dismay and boredom synonymous with jury duty, watching paint dry or for those of us that served in the military, the dreaded KP duty ... people perceive *kata* is performance for demonstrations or 'gotta do it for my promotion' thing" [Osugi 2005].
- "What I saw on the *tatami* during the teaching of *kata* by the experts was clearly against what I was doing and what I had to do to train my attack system to succeed" (cf. insert by Emanuela Pierantozzi).
- "It is not rare, in France, to dissociate the study of *kata* from the rest of judo practice. During a training course program or in a club, it is common to see, for example, a

newaza slot (groundwork) and a *katame-no-kata* slot (*kata* of submission techniques) as if these proposed practices were different and not complementary. ... In France, those who studied or focused on studying *kata* were often depreciated by judo champions whose career was built entirely in judo combat competitions (we can find elements of Kano's principles more dramatically expressed in *randori*). For some, they were 'dancers' who did 'lace' judo, which was not rewarding in the macho context of the judo world" [FFJ, 2010a]¹.

The image of codified *kata* among *judoka* oscillates between dissociation and denigration. *Judoka* (often) perceive these choreographed forms as an imposed and misunderstood ritual, as they do not understand *kata* as part of the history of judo, while they all practice prearranged and choreographed forms of techniques during *uchi-komi*. It should be noted that judo was codified by a university professor and was first taught to adults with a constructed personality. One of the problems today is that judo is mostly taught in the world to children and teenagers who are building their own personalities. It is therefore important that this teaching be meaningful for these children.

Method of teaching: "Shu-Ha-Ri" or active methods of education

Learning this complex of mechanical actions that *kata* are composed of, requires repetitive practice:

- alone, with a virtual partner
- with a partner who cooperates entirely (actions and reactions known by both protagonists) or who cooperates in part (one of the combatants initiates an action not known by the other to allow him to react and take the initiative)
- of combat situations carried out with non-injurious weapons such as papyrus swords among the Egyptians 4000 years ago [Decker 1987]. This required the presence of a third person: a teacher-trainer-master [Vandier 1964; Decker 1987]. There was thus an act of 'training'.

The teaching of *kata* poses a problem of teaching the proper movements and techniques, knowledge, skills that represent the foundation of attack and defense methods of judo with or without weapons from centuries-old exercises. The traditional teaching of *kata* is based on the one hand, on codified *kata* (formal expression) and on the other hand on a teacher-centered instruction model. The teacher explains, shows and corrects. Books and posters describe the formalized procedures, the positions, the actions of attacks and defenses, the directions and types of falls [Le Bihan 1981; Kodokan Judo Institute, 2020].

How to transform this image of *kata* described as "the drudgery or even the unavoidable obstacle to pass the rank promotion test" [FFJ, 2010a], "just any kind of staging or masquerade" [FFJ 2007], "the dreaded KP duty" [Osugi 2005] or described again as "clearly in contradiction with what I was doing ... in order to succeed in competition" [Emanuela Pierantozzi, insert]. If the historical and traditional contents cannot be modified (or very exceptionally modified), we suggest that active methods of education may offer avenues of transformation by making it possible to give meaning to these formal expressions that *kata* represent.

The teacher-centered instruction model (i.e. pedagogy of the model).

The pedagogy of this model is used for teaching judo, including *kata*, and is characterized in the first of the three phases of traditional *budo* training:

¹ Written by 8 judoka judo teachers: six 6th *dan*, two 5th *dan*, four were teachers in middle/high school

SHU or learning – HA or mastery – RI or creativity [FFJ 2010; Hadji Izem 2012]. These phases are defined in the traditional teaching of *budo* (Japanese martial arts) as early as the 19^o century, and proceed from teaching and aesthetic concepts proposed by Zeami Motokiyo in 14th century *No* theater. The three phases follow each other up in a logical and in an immutable order.

"SHU: The neophyte lends himself to the teacher's teaching without restraint, without reflection and blindly. ... The student works by mimicry. The teacher ... assures and reassures so that each step is a factor of progress in the next phase. The student ... performs the learning exercises without question, without contradicting, putting all his heart into the work, without reluctance in front of the effort and the repetitions.

Communication is top-down, from the teacher to the student. The teacher is a model.

HA: Understanding and perfecting the technique (interactivity), the student

looks for solutions to the problems that arise. Communication between the teacher and the student is transversal.

RI: Personal use of knowledge (independence). The student has appropriated the technique and interprets it in relation to himself. He is ready to express himself, to create something personal. The teacher becomes a spectator" [FFJ 2010].

Parent [2020], a judo 6th dan black belt holder, coach and international *kata* judge, describes the RI phase for high level judo athletes when preparing for international *kata* championships. Both *judoka* customize the appropriate attack and reaction according to their personalities, skills and body types while staying strictly within the framework. Within the RI phase the coach no longer acts as a mere spectator, but as an international judge, a guarantor for the respect of this

Studying *kata* is not necessary to become a judo champion, but plays a role in educating the athlete on a cultural level.

Emanuela Pierantozzi, 6th dan judo, double world champion, double Olympic medalist

Studying *kata* is not necessary to become a judo champion, but plays a role in educating the athlete culturally, to enrich her/him as a person. Sports training without cultural education becomes global training with the sole purpose of maximal performance, which in time leads to alienation. Because mastering *kata* is not essential to conquer world and Olympic titles, many champions become successful judo athletes, yet totally ignore *kata* and the traditions of judo, yesterday and today. I, and many other champions, are proof of this. During my entire career as a competitive *jūdōka*, I never studied *kata* and I never wanted to study them. What I saw on the *tatami* during the teaching of *kata* by the experts was clearly against what I was doing and what I had to do to train my attack system to succeed. To surprise your opponent in a combat, you must be creative and explosive: unpredictable. To be unpredictable in attacks, you must have studied the throwing techniques in a non-traditional way: variation of holds, different directions of preparatory movements and type of *tsukuri*, combinations in all directions of reaction, counter-attacks of different types against the same technique, transition to the ground and reversals. The combatant trains for adaptability, not perfection. To be successful in competition, creativity must also be worked on, so that you are able to invent a new solution during combat, a solution never tried before. The study of *kata*, with stereotyped sequences, looking for perfection, with a different rhythm and speed of execution than in competition, therefore may appear as totally useless, it is exactly the opposite of what a champion needs to succeed in competition. Training time is limited and the competition schedule is strictly defined and very dense for an elite *jūdōka* who wants to win and accumulate points to qualify for the most important competitions. The athlete's time is also spent traveling, competing and regenerating from the stresses of life. To win a high-level judo combat, and conquer the most important tournaments scheduled throughout the year, the athlete must train specific qualities and develop them throughout the year, from January to December. The planning of the contents to improve performance does not allow for deviations in the periodization of training. The athlete must "fish" (to catch the opportunity) at the right time to win the fight. To study other skills, such as judo *kata*, so different from the needs of the high level judo player, there is not enough time. Therefore, in my opinion, if a judo federation does not want high level champions and coaches having major prejudices against *kata*, it is necessary to think about alternative methodologies to propose *kata*. Without this original approach, the study of *kata* might be considered as a subject and secondary route for those who lack talent and are unable to study. Judo is a discipline that should give students much more than a sport, thanks to its culture, also made by the knowledge of *kata*. The teaching of *kata* should become more useful and motivating even for those who have talent in combat, because education is very important and more than mere training to improve performance.

framework. Motivation and creativity seem to be self-evident for high-level athletes, but for beginners, it is often, if not too often, a chore, an obstacle that cannot be ignored ...

Although *kata* are an indispensable complement to the knowledge of judo [Kano 1932], their initiation appears difficult and would lead one to believe that "Pedagogy is a combat sport" [Meirieu 2013]. Judo is an educational concept [Hernandez 2008], pedagogy is a combat sport. Can each of these two parts add value to the other? Meirieu, whose scientific field is not usually combat sports and martial arts, supports his pedagogical discourse on the importance of technique in combat sports: "generosity is not enough and, above all, it does not exempt the combatant from a precise and demanding work of preparation. Without it, without the effort to understand, as close as possible to the right one, what makes the difference between an approximate gesture and a perfect one, there is no chance to win" [Meirieu 2013]. Further on, Meirieu emphasizes the importance of culture in training (which may be compared to *kata* training): "If there is an anteriority of culture and knowledge on the subjects who come into the world ... each subject must appropriate this culture and this knowledge in a singular process which requires his personal commitment. Students must be motivated by giving meaning to their learning; active methods must first allow them to think about their work" [Meirieu 2013]. "Training is ... never a simple systematic transmission of knowledge or know-how; it must, however, always integrate the question of meaning, with a personal appropriation of what is transmitted in a project that the educated person builds himself. Educational action is only possible if it integrates, at the same time, an obstinate voluntarism about its means and an extreme attention to the spaces of freedom that allow the educated to put themselves in play" [Meirieu 2020].

Can *kata* be taught without considering these questions of meaning and putting oneself in play? Mere *ex-cathedra* teaching or pedagogical methods solely based on the pedagogy of the model may not be satisfactory. '*Kata*' knowledge acquisition may not result from a chlorophyll-type of pedagogy that involves a teacher radiating his knowledge hence allowing the student to absorb such knowledge in a way similar to the working mechanism of photosynthesis. "Knowledge is only truly useful if it can be transferred to places other than where it was learned. It is not a question of denying the difference in status between trainer and trainee, but the dissymmetry that separates the trainer and the trainee must be clearly finalized by negotiated objectives" [Meirieu 2020]. In this relationship, the teacher does not lose in authority what he gains in humanity [Calmet 2007].

For the contents of formal and technical exercises that are *kata*, the judo teacher can make the student appreciate *kata* by integrating one of their technical principles in a course, by transposing "this principle directly into situations of technical studies that can evolve on *keiko* (working exercises) and *randori*" [FFJ 2007]. If this pedagogical action continues to rely on top-down delivery, from teacher to student, based on the pedagogy of the model and apparently opposite to active teaching methods, one notices some common ground between the viewpoints of the FFJ [2007] and Meirieu [2013], such as: "through (codified) performances demonstrating the principles of judo" [FFJ 2007] as compared to "requires a demanding work of preparation, of perfect gestures" [Meirieu 2013].

Active teaching methods contain more personalized proposals: "each subject must appropriate this culture and this knowledge ... in a singular approach ... in order to understand the world and understand himself" [Meirieu 2013]. These personalized proposals are close to one of the principles of judo "mutual aid and prosperity". By going beyond the narrow representation of standardized skills, biomechanical know-how, short-term memorized knowledge to pass a judo rank promotion test merely by mimicry, without questioning or contradicting or entering any debate preceding the effort and repetitions, the teaching of *kata* represents an opportunity to illustrate the concepts of judo, to teach a culture and knowledge (ordered and fixed for each

kata). This knowledge elucidated in the formal expression or "*kata* as demonstration" is transferable. We will thus be able to understand the world and ourselves by giving meaning to learning. The SHU-HA-RI based pedagogical approach may be modified into a system, as in active teaching methods, to create a different dynamic.

Generally, in judo training, *randori* instruction and practice precede *kata*. Therefore, *judoka* already have developed a certain proficiency in applying techniques in combat situations before they start learning *kata*. In a situation of reasoned and shared opposition with a partner, technical skills acquisition goes through the realization of: (i) direct attacks for white belt; (ii) redoubling of attacks for yellow belt; (iii) sequences of techniques for orange belt and green belt; (iv) counterattacks and attacks in the attack for blue belt and brown belt [Calmet, Matet 1986; FFJ 1989].

In order to understand and perfect a combatant's technique, we may consider that a blue or brown belt *judoka* looks for solutions with a partner (phase HA) concerning the counterattack techniques. He is thus led to create (or recreate) something personal (phase RI) whereas a codified and formal set of attack and counterattack techniques

exists in *gonosen-no-kata*² [Bradic, Callan 2018]. The *gonosen-no-kata* is done in duet. In France, in 2019 demonstration of this *kata* is required for promotion to 4th *dan*. In Brazil, *kata* championships by belt color exist, and it is common to see colored belt holders presenting the *gonosen-no-kata*. This *kata* is a set of 12 attack techniques initiated by one of both *judoka*, neutralized and then reversed by 12 counterattack techniques executed by the other *judoka*. Two groups of attacks may be differentiated:

Historical elements concerning *gonosen-no-kata*

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Historical points:

The purpose of any *kata* is to improve one's own judo, this in combination with *randori*, which makes the practice of both essential to evolve in judo and realizing its goals as defined by its founder Kanō Jigorō. The *gonosen-no-kata* is the *kata* of fundamental counters of standing judo (*tachiwaza*). Just as it is, it conveniently helps completing the *randori-no-kata*. Extremely spectacular, it can be demonstrated in slow motion. A series of 12 articles authored by the late Takahashi Kazuyoshi, a former senior *sensei* at Waseda University, and published between 1919-1921 in the *Kōdōkan's* magazine *Jūdō* dealt with the principles of countering techniques or *ura-waza* and with specific reverse-throws and his research hence illustrating Takahashi's expertise in this matter.

Pedagogical points:

As *gonosen-no-kata* is not accepted as an official *kata* by the *Kōdōkan*, and as the *kata* has undergone a substantial and different evolution in the countries where it has been practiced for half a century or more, there does not exist a universal or standardized method of performing *gonosen-no-kata*.

Among the different variants of *gonosen-no-kata* we can observe being practiced today, there are those where:

- *Uke* attempts to throw *tori* at normal speed, but *tori* counters immediately at normal speed.
 - *Uke* first throws *tori* at normal speed, after which *uke* attempts to throw again at normal speed, but *tori* counters at normal speed.
 - *Uke* first throws *tori* at normal speed, after which *uke* attempts to throw again in slow motion but *tori* counters both in slow motion (demonstrating the precise counter technique) and then at normal speed.
 - Other possible mixtures of slow-motion and normal speed throws, attacks and counters. Additional degrees of freedom observed in contemporary demonstrations according to standards of different countries may include those where:
 - The techniques are demonstrated either statically or on the move.
 - *Tori* and *uke* change their position relative to the *shōmen* after each throw/counter pair.
 - *Tori* and *uke* pause to tidy and adjust their *jūdōgi*, e.g. after a set of 3 counters.
- If, however, the oldest version currently known is the most authentic, then we know that really:

"All these techniques are practiced in a uniform rhythm with the technique being performed completely and unhurried and in a very detached way, with the counter technique being performed with great speed. The falls must be similar to those in the *nage no kata*".

² *Gonosen-no-kata* is not a *kata* that historically belongs to the *randori-no-kata* (i.e., designated by Kanō Jigorō as the most beneficial to the development of the skills necessary for *randori* practice).

6 attacks of leg techniques and 6 attacks of hip and hand techniques (5+1). The ritual is simple, the actions close to the reality of the actual contest.

In this example of a pedagogical situation concerning the search for counterattack techniques, the HA and RI phases are put into a system. The *judoka* is led to work on a personal expression to apply in the context of combat, but which equally could be reapplied in a formal expression form as included in the counterattack *kata*. Creativity is an important quality intended to both surprise one's opponent during competition [Sterkowicz, Franchini 2000; Ait, Calmet 2018] and to be successful in getting recruited in the professional world [Duport, 2020].

Active teaching methods or the systemic use of the SHU-HA-RI phases can help us change a negative perception of *kata* and give a positive meaning to the learning of judo and the concept of *kata*. The innovation, *i.e.*, the 'possibility', for the student to create his own associations of attack/counterattack techniques brings an "added value" to the comprehension of *gonosen-no-kata* as a codified *kata* that respects the tradition.

Aim of the study

A personal expression or personal free practice of concepts of *kata* may precede formal expression or formal codified practice in learning *kata*.

Methodology

Subjects

Within the framework of courses taught at the Faculty of Sports Sciences (STAPS) of the University of Montpellier students follow a general curriculum consisting of a variety of classes (Sports training; Education and movement sciences; Adapted physical activity and health), that are supplemented by elective courses specific to the students chosen sports option.

From 2011 to 2018, results from 38 students of the Faculty of Sports Sciences of the University of Montpellier collected from personal performance in mastering the concepts of the *gonosen-no-kata* (predesigned formal exercise of attacks and counterattacks applicable in judo combat) were available for analysis:

- Subjects were in their 3rd year of study in their STAPS bachelor program; all were enrolled in the judo sports option. Subjects were divided into two groups consisting of 7 Women (W) and 31 Men (M), *i.e.*, a 22.6% W to M ratio, in contrast with a 30% W to M STAPS ratio in 2017.
- Mean age was 21.7 ± 1.4 yrs (mean \pm SD).
- The subjects' judo rank ranged from brown belt 1st *kyu* to black belt 2nd *dan*. All were familiar with competitive judo, judo training methods, and at least one *kata*, *i.e.*, *nage-no-kata*, because mastering this specific *kata* is mandatory for obtaining first degree black belt.
- Subjects had engaged in regular judo practice for >5 years at a minimum of 4 hours per week.

Generally, judo students at this level are not familiar with the *gonosen-no-kata*, which as a mandatory exercise is required in France (in 2019) for promotion to superior black belt ranks starting at 4th *dan*. However, as soon as the topic of *gonosen-no-kata* is introduced, contemporary students tend to look on the Internet for information.

Protocol to collect data

We used the structure of *gonosen-no-kata* as a basis for data collection. All participating *judoka*-students were instructed to present, that is to say, prepare, compose and demonstrate as a pair a *kata* of counter-throws in a noncompetitive recreational setting [Jones, Hanon 2012].

Their technical presentation needed to include all or part of 4 series of 3 attacks followed by 3 counterattacks. These series of 3 throws were chosen in reference to the *nage-no-kata* already familiar to the students.

For the demonstration of these 4 series, the movements and gripping were free to choose:

- 1st series : 3 different attacks and 3 different counterattacks
- 2nd series : 3 different attacks and 1 identical counter-attack repeated 3 times
- 3rd series : 1 identical attack repeated 3 times and 3 different counterattacks
- 4th series : 3 free attacks and 3 free counterattacks

Instruction, preparation and practice time spent, consisted of 2 classes (2 x 2h), plus personal work in between classes. Recorded in video sequences, the subjects' personal performances were compared with an evaluation grid elaborated from the *gonosen-no-kata* (see Table 1).

Table 1. Evaluation grid

N° of the technique	Codified attack	Codified counterattack	Similar technique to attack
1	<i>o-soto-gari</i>	<i>o-soto-gari</i>	<i>o-soto</i>
2	<i>hiza-guruma</i>	<i>hiza-guruma</i>	<i>sasae-tsuru-komi-ashi</i>
3	<i>o-uchi-gari</i>	<i>o-uchi-gaeshi</i>	<i>o-uchi</i>
4	<i>de-ashi-barai</i>	<i>tsubame-gaeshi</i>	<i>okuri-ashi-barai</i>
5	<i>ko-soto-gake</i>	<i>tai-otoshi</i>	<i>ko-soto</i>
6	<i>ko-uchi-gari</i>	<i>sasae-tsuru-komi-ashi</i>	<i>ko-uchi</i>
7	<i>kubi-nage</i>	<i>ushiro-goshi</i>	<i>tsuru-goshi</i>
8	<i>koshi-guruma</i>	<i>uki-goshi</i>	<i>tsuru-goshi</i>
9	<i>hane-goshi</i>	<i>sasae-tsuru-komi-ashi</i>	<i>hane-goshi</i>
10	<i>harai-goshi</i>	<i>utsuru-goshi</i>	<i>harai-goshi</i>
11	<i>uchi-mata</i>	<i>sukui-nage</i> or <i>te-guruma</i>	<i>uchi-mata</i>
12	<i>ippon-seoi-nage</i>	<i>sumi-gaeshi</i>	<i>seoi-nage</i>

Columns two and three of Table 1, respectively, represent the attacks and associated counterattacks, codified and referenced from *gonosen-no-kata*, [FFJ 2007a]. The 4th column lists attacking techniques chosen by the subjects that we deem similar to those already included in the *gonosen-no-kata*. However, the attack made by the first attacker does not go as far as the throw. The combatant executes the beginning of the attack and his partner neutralizes the attack to counterattack. The finish of the first attack hence remains virtual:

- For example, for the 5th technique, the attack in *ko-soto-gake* (column: "Codified attack") does not answer whether the attacker will finish the throw in *ko-soto-gari* or *ko-soto-gake*. This is why in the column of "Similar technique to attack" the technique is only mentioned "*ko-soto*", offering the option of *-gari* form or the *-gake* form.
- Another example concerns the 8th technique, the *koshi-guruma* attack (column: "Codified attack"). The federal poster [FFJ 2007a] states: "Uke attacks without grasping the neck". The carried technique remains a hip movement but could be called *tsuru-goshi* (including *tsuru-komi-goshi*, *o-tsuru-goshi* or *ko-tsuru-goshi*).

The students were not given any specific instructions regarding attacks and counterattacks, and they were not given a list with examples to choose from. However, experienced *judoka* tend to know and practice the notions of sequences and feints from green belt (3rd *kyu*) upwards. They know that counterattacks can be performed after 3 categories of defense: after

blocks/neutralizations (*go-no-sen*), after dodges (*ridatsu-ho* and *seigo-ho*) or they are performed in the attack of the other combatant (*sen-no-sen*).

There exists another type of attack concept in judo, *i.e.* *sen-sen-no-sen* which means "attack before the attack" or in other words, taking the initiative. For these reasons it is not an actual counterattack and for the purpose of this paper not further taking into consideration.

Data collection

After the 4 hours of classes, the subjects' performances were video-recorded in high definition (HD) using a single shot, and digitally encoded in mp4-format using an iPad tablet. Files were then transferred to a Dell computer (Intel Core i7 processor, 32 GB RAM, 1TB SSD hard drive). A physical education and sports teacher specializing in computer science and judo (master's degree in computer science; 5th *dan* black belt judo teacher) analyzed the recorded videos sequences with Kinovea 8.24 software (kinovea.org) to identify attacks and counterattacks as key frames [Calmet 2016]. These data were then input and run in MS-Excel 2019 and statistically processed with XLSTAT 2019.4.1 [Addinsoft 2020]. The alpha was set *a priori* at 0.05.

Results

The data set consisted of 95 series, 286 attacks and 286 counterattacks. Twenty-one series (22.1%) included approach and gripping phases (*kumi-kata*). The subjects completed an average of 2.50 ± 1.47 sets; the distribution of set numbers did not follow a normal distribution (Jarque-Bera test $p=0.002$). The numbers of series were homogeneous (Pettitt test $p=0.406$). Among these 286 attacks, 4 (1.4%) were punches to the face and considered self-defense and therefore will not be included as part of counterattack throws in our study. Such non-throwing attacks may proceed from existing *kata* (such as: *kime-no-kata*, *Kodokan goshinjutsu*) but not from either *gonosen-no-kata* or actual judo combat contest techniques [Hamot 1985; Inogai, Habersetzer 2007]. Students used all 3 categories of defense for their counterattacks: blocks, dodges, and attacks within the attack.

Based on our experience as teachers and judo specialists, we did not notice any difference between the performances of Women and Men *judoka*. However:

- Statistical analysis showed no significant difference in defense categories Women vs. Men in dodging and *sen-no-sen* (respectively in Kruskal-Wallis test $p=0.239$ and $p=0.430$) and showed significant difference in blocking, Women and Men performed respectively on average 1.57 ± 1.27 vs. 4.23 ± 3.25 (Kruskal-Wallis test: $p=0.009$).
- Within a pedagogical classification of techniques [Calmet, Gouriot, 1987; French Judo Federation, 1989], statistical analysis (Kruskal-Wallis test) showed no significant difference in the types of techniques used for counterattack between Women and Men:
 - on two supports without lifting (ex.: *tai-otoshi*) $p=0.957$
 - on one support without lifting (ex.: *hiza-guruma*) $p=0.199$
 - on two supports while lifting (ex.: *seoi-nage*) $p=0.289$
 - on one support while lifting (ex.: *harai-goshi*) $p=0.106$

The data collected did not allow for a comparative analysis of the results of the W vs. M pairs. Distribution of the 282 attacks in the defense categories:

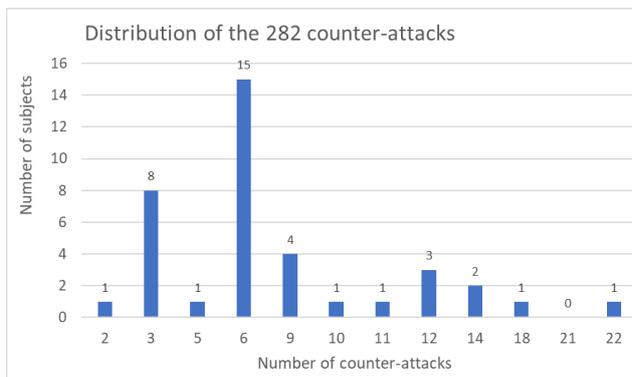
Table 2. Distribution of attacks in these 3 categories:

Number of attacks	Counterattack after blocking	Counter-attack after dodging	Counterattack within the attack
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282	127	(45%)	104	(36.9%)	51	(18.1%)
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Table 2 shows that out of 282 attacks, there were 104 counterattacks (36.9%) after dodging. A breakdown of these 282 counterattacks is shown in figure 3.

Figure 3. Number of counterattacks performed per subject



According to the graph shown in figure 3, three subjects applied 12 counterattacks. Compared to the 12 counterattacks of the *gonosen-no-kata*, 7 subjects (18.4%) performed 12 or more counterattacks.

Table 3. Number of counterattacks applied by these 7 subjects and numbers of counterattacks that correspond to the techniques used as counterattacks in the *gonosen-no-kata*.

Number of counterattacks	22	18	14	14	12	12	12
Number of existing counterattacks in <i>gonosen-no-kata</i>	7	4	8	7	6	4	2
Number of existing counterattacks in <i>gonosen-no-kata</i> / Number of counterattacks	32%	22%	57%	50%	50%	33%	17%

Table 3 shows that out of the 22 counterattacks performed by this subject, 7 corresponded to counterattacks that are part of *gonosen-no-kata* (32%). Subjects appeared familiar with the counterattacks even though they had not yet studied or mastered the *gonosen-no-kata*.

Details of the 282 attacks and counterattacks are provided in table 4. Of the 282 attacks and counterattacks performed, 231 attacks (81.9%) and 47 counterattacks (16.7%); whether performed on the right or the left, corresponded to techniques included within the *gonosen-no-kata* (see Table 1). As of 2012, the techniques prohibited by the International Judo Federation in 2011 for use during judo contests were not allowed to be chosen by the students. We also note the absence of *kubi-nage* attacks, a technique included in *gonosen-no-kata*, but otherwise uncommon, which likely can be explained by the subjects having no prior knowledge of the *gonosen-no-kata*.

Table 4. Detailed study of attacks and counterattacks

	Order in the <i>gonosen-no-kata</i>	Names of the techniques	Times used to attack	Codified replies			Uncodified replies													
				Number of times technique used	Direction of the technique	Time of action	<i>koshi waza</i>	<i>seoi nage</i>	<i>tai otoshi</i>	<i>tani otoshi</i>	<i>utsuri goshi</i>	<i>de ashi barai</i>	<i>ushiro goshi</i>	<i>nidan ko soto gake</i>	<i>ura nage</i>	<i>sumi gaeshi</i>	*variant <i>te guruma</i>	Other		
Codified attacks of <i>gonosen no kata</i>	1	<i>o-soto</i> (ri)	51	22	<i>o-soto</i>	22 ri	9 Bl, 13 SnS	4	3	2	6	1	3	2	3	1		2	2	
	2	<i>hiza-guruma</i> (ri)	5	2	<i>hiza-guruma</i>	2 ri	2 Dod			1									2	
	3	<i>o-uchi</i> (ri)	22	2	<i>o-uchi-gaeshi</i>	2 ri	1 Dod, 1 SnS	6	6	3			1							4
	4	<i>de-ashi-barai</i> (ri)	6	4	<i>tsubame-gaeshi</i>	3 ri, 1 le	4 SnS	1	1											0
	5	<i>ko-soto</i> (ri)	2	0	<i>tai-otoshi</i>			1				1								0
	6	<i>ko-uchi</i> (ri)	13	2	<i>sasae</i>	2 le	2 SnS	2	1	1			2						3	2
	7	<i>kubi-nage</i> (ri)	0	0	<i>ushiro-goshi</i>															0
	8	<i>tsuri-goshi</i> (ri)	10	0	<i>uki-goshi</i>						2	4					1		1	2
	9	<i>hane-goshi</i> (ri)	2	0	<i>sasae</i>						1									1
	10	<i>harai-goshi</i> (ri)	21	5	<i>utsuri-goshi</i>	3 ri, 2 le	5 Bl	3			3	2		2	1				5	0
	11	<i>uchi-mata</i> (ri)	64	9	<i>te-guruma*</i>	7 ri, 2 le	8 Bl, 1 Dod	6	1	9	12	4		1	4	5	1	9	3	
	12	<i>seoi-nage</i> (ri)	35	1	<i>sumi-gaeshi</i>	1 ri	1 Dod	4	3	3	13	1	1				1	1	3	4
Other techniques used in attacks		<i>tai-otoshi</i> (ri)	20					6	1	1	4							1	7	
		<i>harai-goshi</i> (le)	9								1	3			2	1		2	0	
		<i>uchi-mata</i> (le)	6								1	3				2			0	
		<i>okuri-ashi-barai</i> (ri)	4						1	1									2	
		<i>ko-uchi</i> (le)	2						2										0	
		<i>tsuri-goshi</i> (le)	2																2	
		<i>sasae</i> (ri)	1								1								0	
		<i>o-goshi</i> (le)	1									1							0	
		<i>o-guruma</i> (le)	1										1						0	
		<i>sasae</i> (le)	1																1	
		<i>seoi-nage</i> (le)	1																1	
		<i>seoi-otoshi</i> (ri)	1																1	
		<i>soto-maki-komi</i> (ri)	1														1		0	
		<i>soto-maki-komi</i> (le)	1														1		0	

Legend: ri = right; le = left; Bl = blocking; Dod = dodging, SnS = *sen-no-sen* (attack within the attack); * counterattacks made before 2012.

Table 4 indicates that out of these 282 attacks, subjects attacked 64 times applying *uchi-mata* to the right side; there were 9 counterattacks applying *te-guruma* which, as a sequence, corresponds to counterattack already included in *gonosen-no-kata* (7 right, 2 left; 8 after blocking, 1 after dodging) and 55 other non-codified counterattacks.

Discussion

The subjects showed inspiration in the richness of their chosen attacks and counterattacks similar to actual contest situations with 22,1% of their initiatives including phases of initiation, entering (*hairi-kata*) and gripping (*kumi-kata*) before attacking. The low percentage of students (18.4%) who applied 12 or more counterattacks (see Figure 3) and the low percentage of students (16.7%) who applied counterattacks that matched counter-techniques already included in the *gonosen-no-kata* (Table 4), suggest that students have a certain proficiency in judo even though they have no mastership or knowledge of *gonosen-no-kata*.

The subjects who initiated the most counterattacks were not identical to those subjects whose choice of counterattacks corresponded to techniques already included in the *gonosen-no-kata* (see Table 3). However, the rates of attacks and counterattacks that did correspond to those comprised within the *gonosen-no-kata* (81.9% and 16.7% respectively) prompted at least two questions:

1. Whilst De Créé [2015a, 2021] accurately describes the history of *gonosen-no-kata*, any hard evidence as to who exactly created the *gonosen-no-kata* remains lacking. However, we do know that it was developed at Waseda University [De Créé 2015a] in the early 20th century, and that in Europe this exercise was widely promoted by Kawaishi Mikinosuke [1899-1969], a Japanese judo teacher who since 1935 was living in France. The question that arises, is how the creator(s) of this *kata* chose the attacks and counterattacks which the *kata* comprises ? As indicated by De Créé [2015a] the foundation of these counterattacks goes back to the research carried out by Waseda University judo teacher Takahashi Kazuyoshi [1885-1942], and detailed by him in a series of twelve articles written in Japanese that appeared in the *Kodokan*'s magazine between 1919-1921. The answers and choices of counterattacks as shown by the subjects in the current study appear to fit within a good dynamic movement. Considering the evolution of competitive judo one may wonder about *kubi-nage*, now a prohibited throw. We noticed that a single subject chose this attack, hence there was no need for a specific counterattack. This agrees with the absence or low incidence of direct *kubi-nage* attempts in competitive judo.
2. Active teaching methods or systemic use of SHU-HA-RI progressive phases? The debate is and remains open, but the creativity of the subjects can be seen in their movements, their changes in rhythm and intensity, and their choices of techniques. If one cannot deny that "there is an anteriority of culture and knowledge on the subjects who come into the world" [Meirieu 2013], the apprentice can find, retrieve, and put together things already known, but she or he cannot do it alone; he needs an environment, a teacher, practice partners and guidance to learn and facilitate learning.

Subjects clearly incorporated current judo contest rules into their creativity. After 2012, *te-guruma* and other throws, either direct or as counter throw, that required gripping below the belt became prohibited in judo contests, as specified since 2011 in the International Judo Federation's Refereeing Rules. The subjects' technical achievements were good and revealed great potential:

- *Ura-nage* was used rarely: 3.9% or 9 counterattacks out of 231.
- *Ko-soto* attacks were not responded to by *o-uchi* or *uchi-mata* as a counterattack.

These developments are also reflected in the recommendations of the *Kodokan Judo Institute*: "The intermediate level (of Judo) ... is improving the spirit by using every opportunity to practice. By being considerate of things such as observing others' practice patterns, forging the body and spirit through various techniques" [*Kodokan Judo Institute*, 2021]. The prospects for furthering this work hence seem abundant.

The pedagogical experience we have proposed applies to any *judoka*, whether they are studying judo at school or university, or in a judo club. This allows us to identify a number of perspectives. For example, we may use the *nage-waza ura-no-kata*, authored by Mifune and proposed in the years 1930-1938. It represents another *kata* that comprises similar ways that may help better understand the concept of *kata*. "The purpose of *nage-waza ura-no-kata* is not to copy a supposed performance that must then be evaluated and graded by a jury, but to develop the ability to perform judo at the supra-mechanical level of *myowaza* (unexplainable sophisticated technique), regardless of differences in the smallest technical details" [De Créé 2015b].

There are two possible axes to open up perspectives [De Créé 2015a]:

- "As *gonosen-no-kata* is not accepted as an official *kata* by the *Kodokan*...there is no universal or standardized method for performing *gonosen-no-kata*."
- "The purpose of *kata*, similar to *randori*, is to improve one's judo ... not to superficially copy mechanical patterns."

This non-standardization and continuous improvement will allow us to understand why and how to build these sets of attacks linked to counterattacks by listing and organizing the various possibilities: (i) *sen-no-sen* or *go-no-sen*; (ii) movements with approach-approach phases or traditional face-to-face *kata*; (iii) technique entries; (iv) technique classification.

- Which mode of counterattack to build one's personal expression?
 - All counterattacks are presented in *go-no-sen* mode (control by blocking, then counterattack);
 - All counterattacks are presented in *sen-no-sen* mode (attack within an attack);
 - The counterattacks are presented in various combinations of these two modes;
- What type of contextualization?
 - All the techniques are presented with an approach phase, followed by gripping (contextualization of the combat);
 - All techniques are presented in a static way (*kata* contextualization);
 - The techniques are presented in various combinations of these contextualizations;
- What type of entry or placement to attack?
 - Sliding entries;
 - Jumped entries (*tobi-komi*);
 - Entries with gallop time (close successive presses) (*oi-komi* & *ken-ken*);
 - Entries involving sacrifice of one's own balance leading to application of *sutemi-waza*;
 - Entries with various combinations of the above;
- What classification of techniques should be used?
 - *Kodokan*-type classification (*te-waza*; *ashi-waza*; *koshi-waza*; *sutemi-waza*);
 - The techniques are presented with a single classification or with several classifications.

- Pedagogical classification (techniques on one support, on two supports, while lifting, without lifting), [Calmet, Gouriot 1987; French Judo Federation, 1989];
 - o The techniques are presented by combining these classifications.
- Selecting options among these possibilities will allow the construction of personal expression either during the application of standing techniques (*tachi-waza*) or in groundwork (*newaza*).

Some operational applications rather than ‘prescriptions’ are proposed below as ‘keys’ to understand the tasks:

- *Go-no-sen* mode, combat contextualization, associated entries, 3 free attacks with circle shifts, 3 free counterattacks;
- *Go-no-sen* mode, contextualization of the combat with opposite grip for the attacker, entries with gallop time, 3 attacks in *ashi-waza*, 3 counterattacks in *ura-nage*;
- *Sen-no-sen* mode, *kata* contextualization, sliding entries, 3 attacks in *ashi-waza*, 3 counterattacks in *sen-no-sen*;
- *Go-no-sen* mode, combat contextualization, *sutemi* entries, 3 attacks with the same technique, 3 counterattacks with different standing transitions (*osaekomi-waza* (holds), *kansetsu-waza* (arm bars), *shime-waza* (strangulations));
- *Sen-no-sen* mode, contextualization of combats, ground-work, 3 free attacks, 3 free counterattacks, attacks and counterattacks can be linked [Calmet 1996].

However, we can consider as limits to this study several types of remarks coming from a virtual interlocutor:

"The students' motivation is dependent on academic assessment; you cannot find that kind of atmosphere in clubs."

This assignment accounts for about 10% of the students' grade, and the students' accomplishments seem to be based more on demonstrating their judo skills than seeking a grade.

"If the subjects previously would have learned gonosen-no-kata they would have wasted less time."

If so, would the subjects' sense of *kata* as "The drudgery or even the unavoidable obstacle to pass the black belt and higher ranks" [FFJ 2010a], have been overcome, or on the contrary, would the subjects have concluded: "how are study assignments at university different from training at their judo club?"

It seems to us though, that the learning of concepts (regardless of the place of learning: university, company or club) is one of the strong points for further development as it allows to envisage a transferable work aim.

"Gonosen-no-kata is not an authentic kata, and counterattacks were easily managed by the subjects, so what about other kata?"

The working method we proposed, can be applied directly on *katame-no-kata*, where sequences of actions-reactions (attacks and defenses) occur between the pair of practicing *judoka*. Whilst such actions-reactions are present in all three series of *katame-no-kata*, lower rank judo students are likely to feel most comfortable with techniques of this *kata*'s first series which comprises *osae-komi* (holds) as these are built from technical material and skills each judo student will have been practicing from the very beginning of his or her judo career. The learning of self-defense *kata* such as *kime-no-*

kata or *Kodokan goshinjutsu* also might be pursued in a similar way. Given the very distinctive nature of *itsutsu-no-kata* and *koshiki-no-kata*, when compared to the *randori-no-kata* and self-defense *kata*, *i.e.* historic forms carefully codified to preserve complex and partially esoteric theories that are deeply embedded in Japanese aesthetics of which the theoretical foundation itself is *katachi* or form, these *kata* fall outside the purview of our hypothesis.

Opposite these limits, a path to follow holds our attention. It should be noted that in 2019, the FFJ to its technical staff proposed an approach and use of *gonosen-no-kata* to vary and improve (both on a sports and cultural level) the warm-up exercises for the "poles espoirs" sections in high school [Filaine 2020]. Here, we see an example of including "this principle (of *kata*) directly in situations of technical studies that can evolve on *keiko* (working exercises) and *randori*" [FFJ 2007]. The above operational applications are suitable for this type of request, and can also open up the cultural approach to *kata*.

Conclusions

Evaluation of the subjects' achievements is "active and reactive", it seems sensible to us to continue utilizing exercises that build on formal expressions because of the variety in avenues that are offered. To do so, a teacher or evaluator needs to carefully observe the work of the pair of interacting *judoka* in order to evaluate whether the attacks and counterattacks are logical, smooth and cohesive. Carrying out these observations and subsequent analyses make this a considerable time-consuming effort.

We have pointed out that the contents concerning the choice of techniques to be performed in *kata* are rarely, poorly or not precisely explained. This paper proposes a number of pedagogical variables: the mode of counterattack, the type of contextualization, the type of entry or placement to attack, and the classification of techniques to be used. With these variables judo teachers can build pedagogical situations and explain how and why *judoka* have to train and what they have to do.

The results show that there was no significant difference in the number and type of defenses between Women and Men *judoka* in dodging and *sen-so-sen*, but a significant difference in blocking. Furthermore, there were no significant gender differences in the types of techniques chosen as counterattacks. Students used their knowledge-in-action (of judo) in their personal expression. Active teaching methods, by shaping the elements of the demonstration, appeared to stimulate motivation and gave a positive meaning to the subjects' efforts. The main idea was to help and widen the understanding of the concept of *kata* through formulating personal technical expressions in order to facilitate the learning of *kata*. The subjects' autonomy to choose attacks is delineated by the following framework:

- The 4 series (3 different attacks and 3 different counterattacks; 3 different attacks and 1 identical counter-attack repeated 3 times; 1 identical attack repeated 3 times and 3 different counterattacks; 3 free attacks and 3 free counterattacks)
- The need for the counterattacks found to be compatible with the chosen attack.

One can speak here of re-creation rather than creation. Thanks to this set framework, a *judoka* grasps the logic of nomenclature, and may no longer feel constrained by "ancestral impositions" whose logic of composition she or he might choose to ignore. This triggers a shift in the possession of and access to knowledge in which the teacher traditionally is a model and the student works by mimicry. It is no longer the teacher who hands down and dispenses identified knowledge in an enlightened way (the learners would learn by diffusion and photosynthesis,

i.e., through a form of pedagogy that could be described as "chlorophyllous"), but a teacher who actively is involved in the structuring of knowledge rediscovered by his target group.

The subjects' achievements were positive, and the degree to which their chosen counter techniques conformed to those occurring in *gonosen-no-kata* leads us to conclude that they seem to have understood the main concepts of this *kata* so that subsequently addressing and learning their formal expression should not pose any major problems.

This subjects' achievements suggest a focus on inventiveness and anticipation. Everything that contributes to the complementarity between *randori* and *kata* is welcome in the training of *judoka*. The combatant will be all the more inventive, reactive and surprising as she or he will have "deconstructed" the sequences, counterattacks, reversals and dodges in a series of formal or personal forms.

Giving students the opportunity on their own to find the right match between attack and counterattack, and to choose the type of series in the structured framework or the order of techniques in the series, may improve: their sense of self-determination, their sense of competence, their sense of autonomy, and their sense of confidence. This alternative type of teaching provides the opportunity to develop a personal expression preceding a formal expression while allowing the understanding of the principles of *kata*.

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