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Inès Souid

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Physical Education Teachers in Tunisia Conception of Training Actors as a Source of Vulnerability

I. Souid^{a*}

^a *University of Lyon / University Lyon 1, L-VIS, EA-7428, SFR CRIS, FED-4272, France.*

Author's contribution

The sole author designed, analysed, interpreted and prepared the manuscript.

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ABSTRACT

Tunisia became a French protectorate in 1881, which ended in 1956. This led Tunisia to ensure the education of the young Tunisians and, as a consequence, to ensure efficient training of future teachers. Until nowadays, this project did not lead to satisfying outputs, especially in the case of PE. The present study thus aimed to examine the possible vulnerability of the training of PE teachers in ISSEPs. This was done by using semi-directed interviews to take into consideration the point of view of major players in the training (*i.e.*: the directors of the ISSEPs, trainers, and students) regarding teacher training in the ISSEPs.

The results of a lexical analysis (Alceste2012plus©) completed by a categorical analysis showed that these interviewees are aware of the weaknesses of the training of PE teachers in ISSEPs. However, each type of interviewee considered that these difficulties are not linked to themselves but rather to another type of interviewee or to causes originating from outside of the training itself. Such potentially conflicting points of view were also found to be formulated on the base of a consensus regarding PE as the interviewees implicitly consider PE as a sports initiation (or as a sports training). However, this consensus, probably anchored in the mentalities since the independence of Tunisia, is not consistent with the target set by the Education Act of 2008.

As a consequence, this suggests a particular interest to make the training evolve as a function of the requirements of PE teaching, which might require promoting an innovative form of training.

*Corresponding author: E-mail: nanoussa.souid@gmail.com;

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1. INTRODUCTION

Tunisia was a French protectorate from 1881 to 1956 before becoming an independent State [1]. Consequently, the Tunisian Government was obliged to ensure the autonomous development of the country. However, during the protectorate, few Tunisian natives were trained to contribute to such development [2] and even fewer ones were involved in the management of institutionalized education [3]. In addition, the enrolment rate in primary education (30%) was limiting future training of Tunisian managers who could replace French officials and administrators [4]. Since 1958 this led the Tunisian political power to implement a series of reforms to liberalize access to school education [5]. Therefore teacher training became a main issue for the Tunisian State [5].

However, until nowadays, consecutive attempts to develop teacher training in Tunisia have not led to satisfying outputs. Difficulties to design training that would integrate optimally the academic and professional contents led to successive institutional changes from the 1960s to the 2000s [6-8]. After 2005 training was changed in order to adopt the Bachelor-Master-Doctorate (BMD) structure adopted by the Tunisian universities. This contributed to hampering the optimization of teachers' training because the BMD structure was implemented in the absence of a consequent training of the trainers [6,9].

Historically the training of PE teachers in Tunisia has been developed in such dynamics. In the 1960s, PE, conceived as a sports initiation, was considered a major educational means for youngsters by the political power of Tunisia [10,11]. The politics of recruitment and training was hence initialized to reduce the lack of PE teachers [11]. The training duration was progressively increased from six months in 1957 to four years in 1990 and four Superior Institutes of Physical Education and Sport (French acronym: ISSEP) were progressively created (in Tunis, Kef, Sfax, and Gafsa) to ensure this four-year training [4,11]. However, since 2005 the training duration has been reduced from four to three years in the framework of the BMD reform engaged by the Tunisian universities. The hourly volume of training was also reduced from 3210 hours to 2268 hours, a reduction which has increased the difficulty to design efficient training [12-16].

The such difficulty has also been increased by other developmental choices regarding Tunisian PE [17,18]. On the one hand, PE has been charged, since the Education Act of 2008, not only to provide access to sports but also to contribute directly to the learning of a series of methodological and social competencies [19]. On the other hand, the status and the teaching conditions of the Tunisian PE have progressively deteriorated and, in the mid-2000s, ISSEP students have had no longer the possibility to be recruited as PE teachers within five years after graduation [20]. Such changes required substantial adaptations of the training in the ISSEPs that may have been limited by difficulties to put this training in accordance with the BMD reform running in the Tunisian universities [6].

In the 2010s the training of PE teachers in ISSEPs thus faced a series of difficulties. Part of these difficulties were contextual ones as they are linked to the initialization of a BMD reform or to the development of PE [21-23]. It is also possible that the adaptability of the ISSEPs was not sufficient to overcome these difficulties especially as the ISSEP dynamic seemed to be weakened at the beginning of the 2010s [20]. This may have induced difficulties internal to the ISSEPs to produce an adapted curriculum to train PE teachers.

In particular, such a situation may have elicited affective reactions and resistance to change in the ISSEP actors, notably by challenging their representations of PE and/or of the training of PE teachers. Therefore this may have limited the capability of these actors to ensure an optimal adaptation of the training. The present study thus aimed to examine this possible effect on the ISSEP actors.

2. METHODOLOGY

2.1 Subjects

A total of 34 subjects were interviewed, representing the four main types of ISSEP actors: the directors of the four existing ISSEPs (D; one woman and three men), eight academics (A; two women and six men), 12 trainers specialized in sports technology (T; two women and 10 men), and 10 ISSEP graduates not yet recruited as PE teachers (S; five women and five men); each of the A, T, and S subjects were from the ISSEP of Tunis. The 34 subjects fully cooperated with the interviews that took

place in Tunisia during the academic year 2017-2018.

2.2 Interviews

Semi-direct interviews [24,25] were realized to favor the expression of the subjects' points of view regarding PE training in ISSEPs. The subjects were interviewed separately, by the same interviewer, in a quiet room. The subjects were informed of the main lines of the study but remained unaware of any expected result.

Each interviewee was asked to react to a series of cards designed in accordance with Peirce [26], as in the previous study of Souid, Alin, Liotard, and Fargier [27]. A set of seven cards was presented to each interviewee who turned one of them at random and reacted to its content, then each subject chose another card, and so on until the seven cards were turned. The cards content focused, on the one hand, on the goals, conditions and structuration of the training, on the other hand, on the contents and methods of training (Fig. 1). Depending on the comments of the interviewee the interviewer could use an interview guide (see: Fig. 1) with the aim to help further the development of an expressed idea [25]. This allowed us to consider the main indicators to characterize the quality of a training curriculum [28] at the reaction level (see: [29]) through interviews that lasted from 30 to 45 minutes.

2.3 Content Analysis

The interviews were transcribed to allow textual analysis with specific software (Alceste2012Plus©) well-suited to analyze discourses at the reaction level as in the present study [30,31]. The realization of this analysis included four main steps from the transcription of the interviews to the outputs [30,31]:

- 1. Transcription of the interviews in a unique .txt file and specific encoding of the interviewee type (external variables) at the beginning of each transcribed interview, *i.e.*: *D, *A, *T, and *S;
- 2. Determination of the lexemes to be analyzed by identifying the words in the file (the software using an internal dictionary), disambiguation (the polysemic words being analyzed in textual context), and lemmatization (leading to reduced forms from initial full words);

- 3. Establishment of a Hierarchical Descending Classification (HDC): as the computations are based on the presence vs the absence of each lexeme in automatically predetermined text fragments [*i.e.*: elementary units of context (EUCs)], two HDCs were systematically done to verify possible sensitivity of the analysis to the EUC length.
- 4. Obtention of the data, collected as categories of lexemes with, for each category, a list of significantly associated lexemes (by Khi-square of association), including the associated types of interviewees (external variables), and a list of characteristic EUCs (determined by a specific coefficient derived from Khi-square).

These outputs allowed a content analysis to give sense to the determined categories [32].

3. RESULTS

The analysis identified 105.407 lexical forms (5763 distinct forms including 2183 forms used only once, *i.e.*: hapax, which led, after lemmatization, to 1252 analyzed lexemes). The lexemes were distributed in six categories by HDCs (Fig. 2). These HDCs covered 71% of the EUCs (above the 50% threshold). In addition, the HDCs showed weak sensitivity to the EUC lengths. Consequently, the six categories examined thereafter can be considered reliable (Fig. 2).

3.1 Categories of Lexemes

Examination of the lexemes in each of the six categories (C) allowed a first approach to the themes linked to each C (Table 1).

The lexemes of C1-6 suggested that the discourses focused on: C1 – the teaching of sports activities in ISSEPs (*e.g.*: handball, running, semester, students); C2 – the internship in schools (*e.g.*: supervising, management, school, intern); C3 – the possibilities for ISSEP students after graduation (*e.g.*: master, doctoral, continuous, unemployment); C4 – the socioeconomic situation of the ISSEP graduates (*e.g.*: sport, club, salary, dinar); C5 – the learning of competencies to teach (*e.g.*: teaching, professional+, competent, learn+); and C6 – the ISSEP courses in different scientific domains (*e.g.*: psychology, physiology, sociology+, training).

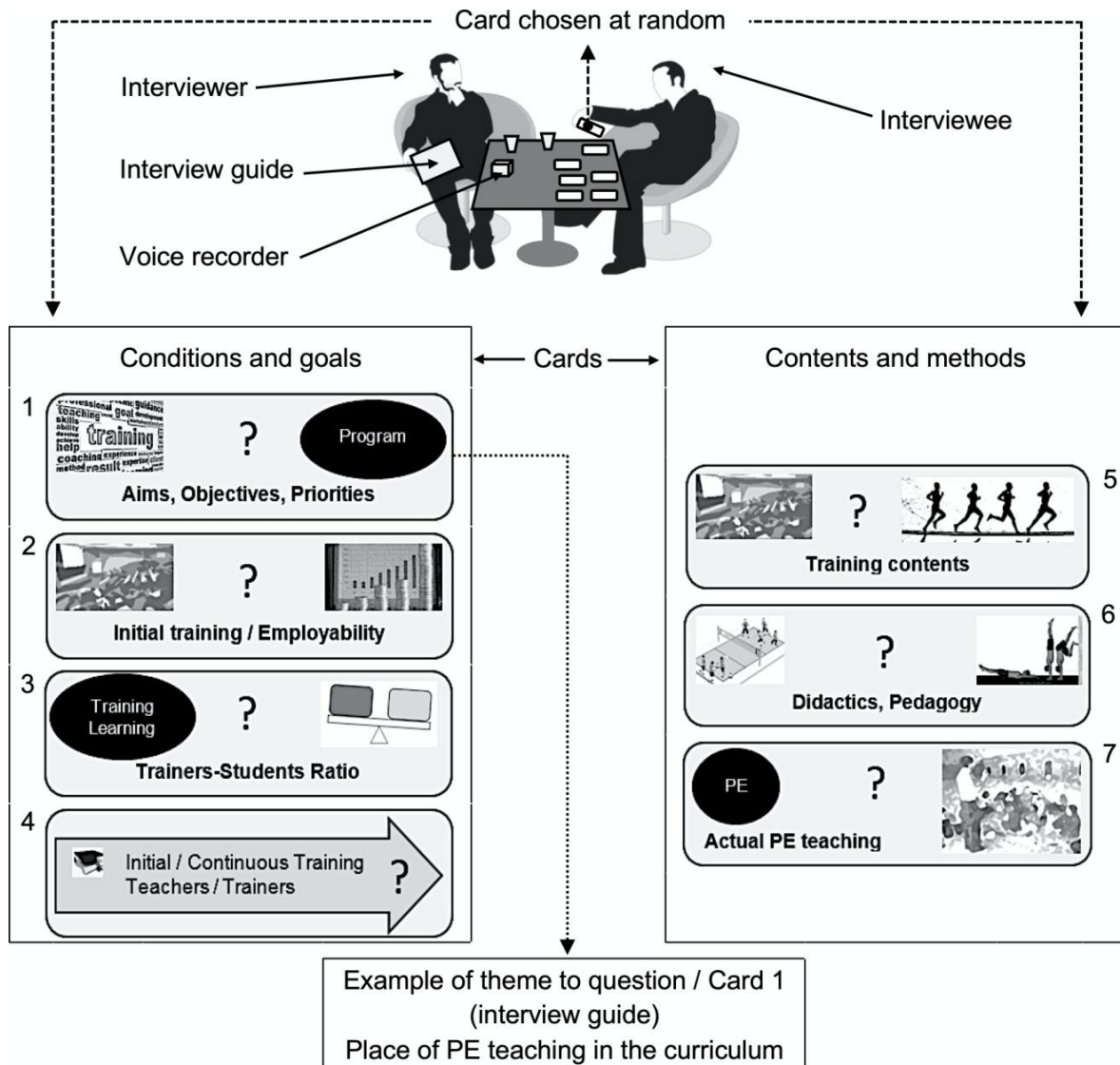


Fig. 1. Semi-direct interviews: Design and tools

Semi-direct interviews were done to voice record the interviewees' points of view regarding PE teacher training in ISSEPs. The interviewees had to react freely to a series of cards chosen at random (the card contents were not visible initially and each card had to be returned). These cards were designed to induce interpretation of key words, drawings, and/or photos, hence to favor the expression of personal feelings or think. Four cards were created to initialize comments regarding the goals of the training (Card 1), the achievement of these goals (Card 2), the training conditions (Card 3), and the global structure of the training (Card 4). Three other cards were produced to initialize comments on the contents and methods of training regarding the different types of ISSEP courses (Card 5), the teaching of physical activities (Card 6), and PE teaching in real conditions (Card 7). The interviewer could use an interview guide to help the interviewee to add precisions or complements, but not to induce the content of a reflection.

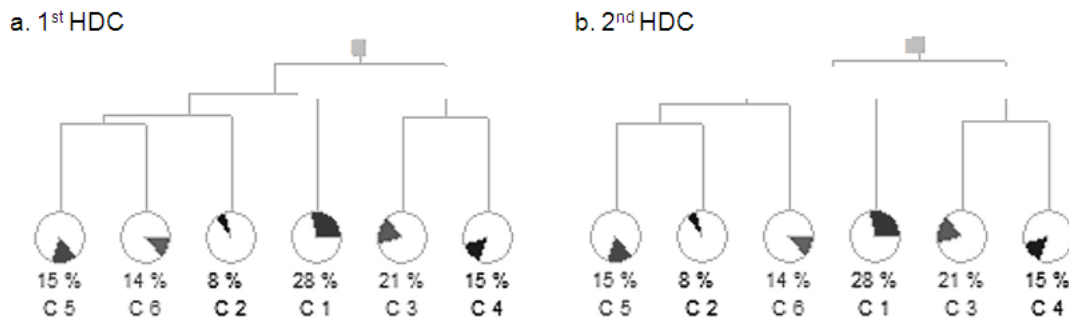


Fig. 2. Results of the two computed hierarchical descending classifications (HDCs)
 The dendrograms given by Alceste2012Plus© show the consecutive steps of the two computed HDCs [by using elementary units of context (EUCs), of different lengths]. From the verbatim (transcribed interviews, indicated by ■) the software realized a first bipartition (first indentation under ■ in Figs. 2.a and b.), then, from the greater partition, a second bipartition, and so on until bipartition did not lead to improve HDC results. The dendrograms show that the HDCs only differ at the third-step level to differentiate the same three categories (C2, C5, and C6). Percent of UCEs linked to each category of lexemes are given and do not vary from one HDC to the other

Table 1. Categories of lexemes: Samples

C1	C2	C3	C4	C5	C6
session	supervise	master	region	teaching	psychology
196	171	132	203	126	195
semester	management	diploma	sport	professional+	science
128	154	115	156	76	156
gymnastics	quality	continuous	Tunisia	competent	physiology
86	135	109	152	72	133
student	school	unemployment	salary	learn+	training
71	101	102	125	60	79
sequence	intern	integration	club	knowledge	biological
66	79	101	104	48	71
year	number	seminar	fitness	mobilization	sport
62	77	82	97	48	68
second	university+	research	dinar	context+	anatomy
60	72	78	85	42	55
handball	lack	wait	exploit	thinking	motor
60	47	75	46	40	52
jump	LMD	doctoral	money	didactic	content
51	29	53	45	40	50
running	deficient	training	marginalize	attitude	sociology+
43	25	43	41	37	46

Table 1 shows a sample of lexemes in each category (C1-6). In each C lexemes are listed by: decreasing order of Khi-square values (in italics after each lexeme)

Some lexemes in C1-6 also suggested that the interviewees developed critical thinking (e.g.: lack, deficient, marginalize), which can be verified by examining the EUCs characteristic of each C.

3.2 Characteristic EUCs

A series of EUCs were found to be characteristic of each category of lexemes (Table 2).

Table 2. Categorical analysis of the characteristic elementary units of context (EUCs)

C	Statements in the characteristic EUCs	n	Lexical themes
1	PE is a sport initiation	25	Teaching of sport activities in ISSEPs
	Courses regarding sport pedagogy begin too late in the curriculum	12	
	Prerequisites to take courses regarding sport pedagogy are lacking	9	
2	Internships in schools should be reorganized	6	Internship in schools
	Human resources are lacking for internship	15	
	The internship duration has been too reduced by the BMD reform	3	
3	Graduates must wait several years before becoming PE teachers	3	Possibilities for ISSEP students after graduation
	Follow-up and training possibilities after graduation are lacking	38	
4	The graduates face socioeconomic difficulties	13	Socioeconomic life of the graduates
	Job opportunities suited for the graduates are lacking in Tunisia	12	
5	Training must favor the acquisition of professional competences	19	Professional competencies
	Training does not ensure professional efficiency	7	
6	A multidisciplinary curriculum is required to train PE teachers	7	Courses in different scientific domains
	Links between courses in scientific domains and PE are lacking	18	

n = number of EUCs;

Lexical themes = themes determined by analysis of the categories of lexemes

Categorical analysis [22] of the characteristic EUCs (coefficients linking such EUCs to a category of lexemes varying from 102 to 18) led to determining the key-statements made by the interviewees (Table 2). This confirmed the six themes of discussion suggested by analyzing the categories of lexemes (Table 2 / Lexical themes).

The analysis showed that 27.3% of the characteristic EUCs expressed a conception of PE as a sports initiation or of the training of PE teachers as requiring a multidisciplinary curriculum and/or as ensuring the learning of professional competencies (Table 2 / C1, C5, and C6). The analysis also showed that another 35.3% of the characteristic EUCs indicated perceived problems or difficulties regarding the graduates (Table 2 / C3 and C4). In addition, this analysis confirmed that the last 37.4% of the characteristic EUCs contained critical statements that were found to concern PE training (Table 2 / C1, C2, C5, and C6).

This led to further analysis taking into account the types of interviewees, *i.e.*: the external

variables encoded to compute textual analysis (see § 2.3).

3.3 External Variables

The textual analysis led to determine six categories of lexemes and the types of interviewees that were significantly associated (by Khi-square) with each category (Table 3).

The results showed that the interviewees invested themselves selectively in the topics of the interview (Table 3).

Considering Table 2, Table 3 indicates that the *A and *D subjects particularly developed comments on:

(1) difficulties to ensure the internship in schools and the necessity to reorganize this internship (Table 2 / C2); (2) the existence of few possibilities for the graduates to continue training and/or to benefit from a follow-up after graduation (Table 2 / C3); and (3) the acquisition of professional competencies as a key- goal unachieved by the training (Table 2 / C5).

Table 3. External variables: Khi-squares of association to each category of lexemes

	C1	C2	C3	C4	C5	C6
*A	- 44	14	3	- 16	35	3
*D	- 54	17	2	0	17	0
*S	38	- 9	- 8	2	- 33	6
*T	24	- 10	0	3	- 6	- 11

*For each type of ISSEP interviewee (*A = academics; *D = directors; *S = graduates not yet recruited as PE teachers, and *T = trainers specialized in sports technology) Table 3 shows the values of Khi- square of association to each category of lexemes identified in the interviewees' comments. The greater the Khi-square value, the stronger the association. Light-grey backgrounds emphasize the statistically significant associations*

Table 3 also indicates that the *S and *T subjects particularly emphasized: (1) a conception of PE as a sports initiation and, either a too-late initialization of the courses in sport pedagogy in the curriculum or a lack of prerequisites to take these courses (Table 2 / C1); and (2) the socioeconomic difficulties of the graduates not yet recruited as PE teachers (Table 2 / C4).

In addition, Table 3 indicates that the *A and *S subjects particularly defended the relevance of a multidisciplinary curriculum to train PE teachers. Moreover, these interviewees considered that the multidisciplinary training in ISSEPs does not enough link courses in scientific domains and PE (Table 2/ C6).

Altogether this may denote a development of the interviewees' discourses depending on the centers of interest of each type of interviewee. This may also suggest the existence of different points of view regarding the perceived difficulties or limitations in the training that are

expressed in ECUs of each C. This led to considering the attributions of causes to such difficulties and limitations (Table 4).

Perceived difficulties and/or limitations in the training were attributed to different causes depending on the interviewees (Table 4), i.e.: to different ISSEP actors (A, S, or T), to ISSEP possibilities (human resources, training offer), to the BMD reform, to possibilities in the professional field, or to the job market.

Such causal attributions were found to vary from one type of interviewee to another. However, each type of interviewee only mentioned causes attributed to another type of interviewee or originated from outside of the training, e.g.: the *S subjects attributed problems linked to the courses in sport pedagogy to the T subjects and to the curriculum design, while the *T subjects linked such problems to a series of prerequisites that the S subjects would not master (Table 4).

Table 4. Causes imputed by interviewees to training difficulties

≤	C1	C2	C3	C4	C5	C6
*A		Human resources BMD	PE field Training possibilities		Professional training in ISSEPs	T
*D		Human resources BMD	PE field Training possibilities		Professional training in ISSEPs	
*S	Curriculum design T			Job market		A
*T	S			Job market		

Table 4 shows the causes attributed by each type of interviewee (*A = academics; *D = directors; *S = graduates not yet recruited as PE teachers, and *T = trainers specialized in sport technology) to perceived difficulties in the training of PE teachers. These attributions are considered in each lexical category (C) determined by textual analysis (Alceste2012plus©) for each type of interviewee significantly associated with this category. Some causes of difficulties are attributed to ISSEP actors (A, S, T), the others, to a lack of human resources or training possibilities, to the ISSEP capability to ensure the acquisition of professional competencies (Professional training in ISSEPS), to the BMD reform, to possibilities in the professional field (PE field), or to the job market

4. DISCUSSION AND CONCLUSION

The study presented here focused on the training system for PE teachers in the Tunisian Higher Institutes of Sport and Physical Education (ISSEP) through the prism of vulnerability. This, in particular with regard to the center of Ksar Said, based in Tunis, while opening up to the cases of the three other centers existing in the state (Kef, Gafsa, and Sfax). The reasons for this study, the approach adopted as well as the results that it made it possible to obtain and the conclusions that they authorized will be recalled below. On this basis, an examination will be carried out of the points of support helping to alleviate, if possible to overcome, the difficulties encountered by the training of PE teachers in the ISSEPs. Eventually, avenues for innovation will therefore be outlined.

The history of teacher training in Tunisia is closely linked to that of the development of school education in this country, following its independence (1956) after several decades of a protectorate (1881-1956). At independence, Tunisia found itself in a situation of having to assume its destiny, which was conditioned by the education of its youth who were then moderately educated in disparate structures. There was a politic development and unification of the school system through a series of reforms (1958, 1989, 2002). The implementation of this politic thus required a particular effort in terms of training Tunisian teachers, whose number was lower at independence. However, if the School has indeed opened up to all young Tunisians, the question of the quality of the teaching provided there has been raised repeatedly since the end of the 1950s. quantitative (number of teachers required to ensure access for all to school) to ensure increased relevance of teacher training has not, however, given rise to a stable formula, despite the establishment of a succession of structures, systems, and training models over the years. This regular questioning, if it is a sign of concern for regulation, nevertheless suggests a difficulty in finding alchemy deemed satisfactory between the academic and professional aspects of training. The difficulty that persisted while teacher training was becoming more university-based to (re)merge, during the 2000s, in an LMD system. It is against this backdrop that the training of PE teachers in Tunisia has been positioned. From the 1960s, physical education (PE), which was to become certified (EPS) with the official instructions of 1968, was conceived as an important vector for the education of

Tunisian youth. Also, this discipline, like the training of PE teachers, has experienced a period of growth, favored by a proactive politic of creating infrastructures and sports equipment. A deterioration in the material conditions of practice and a lower endowment of human resources in relation to the needs have gone hand in hand with a relative demobilization of the teachers and a lesser enthusiasm of the pupils for PE. Also, the Tunisian EPS found itself in difficulty, a fortiori to take up a new challenge specified by the law n° 2008-9 of February 11, 2008.

This law, if it does not call into question the sports orientation of physical education, calls on this discipline to contribute to the construction of so-called general skills with methodological and social content. One might expect such an injunction to have an impact on the training of PE teachers.

This panorama suggests that the training of PE teachers in ISSEP is experiencing a difficult situation as it stands at the same time that it is faced with a challenge relating, on the one hand, to its inclusion in the LMD reform that must assume the Tunisian University, on the other hand, to regulate its contents in order to train teachers able to contribute to the orientations set by law n° 2008-9 of February 11, 2008. If a training system inevitably runs the risk of being impacted by a reform and of being, or not, in a position to adapt to it at the cost of certain bereavements, the adaptability of the training of EPS teachers in ISSEP has thus been strongly called upon due to structural and institutional changes.

Like any training, the training of EPS teachers in ISSEP runs the risk of being confronted with the hazard of the context in which it takes place and of having to deal with this one with one of its singularities. This training is part of a complex process integrating: (1) difficult socio-economic aspects, referring in particular to a job market that is unfavorable to university graduates or even to very belated and uncertain recruitment of graduates from the EPS sector by the educational institution, (2) elements specific to the field of the University or the EPS, with the advent of a reform of the University (LMD) and a new course allocated to the EPS (contribution to the construction of general skills), (3) factors specific to those involved in training with regard to their propensity to resist change and their conception, which is potentially very sporty, of physical education and the training of physical

education teachers. Also, the training of PE teachers in ISSEP is placed in a complex and evolving whole, integrating contextual aspects, systems, and human actors, and is there potentially weakened in its resistance to contextual vagaries. , its ability to adapt or even to show resilience, which is likely to further increase its fragility or even, in the long term and at the most, to provoke a political questioning of its validity.

The study presented here has thus endeavored to shed light on this gray area of interest to the mainsprings of the training system considered in order to: (1) consider their perception of the sources of contextual or inherent vulnerability in the training system itself and (2) their readiness to work towards an adaptation of this system, taking into account their impact by these sources of vulnerability or this perspective of adaptation as well as their representations of training and/or physical education. Three hypotheses have been put forward, according to which: (1) the actors of EPS training in ISSEP are aware of the factors placing this training in a difficult situation, given the significance of some of these factors, (2) these actors have a critical point of view as to the training system in place and therefore believe that it would require regulation, (3) the assignment and representations of these actors are such as not to predispose them to work effectively on an adaptation of training in the constraints and issues relating to this.

Finally, from a perspective of innovation, I propose a competency framework that will unify the training activities for all training actors with a view to a common training project.

The competency framework makes it possible to better clarify the conceptions of the actors of the training as to the skills that must be acquired for future teachers. This could also help the trainers to perceive the aims of the training and to start from a common vision of training future teachers of physical education.

ETHICAL APPROVAL AND CONSENT

The present study was approved by the Institutional Review Board of Claude Bernard University and the 34 ISSEP actors asked to participate in this study gave their informed consent.

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COMPETING INTERESTS

Author has declared that no competing interests exist.

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