Characterisation of the professional identity of teachers of vocational and technical training in Senegal: an exploratory study

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Abstract

This paper presents an approach to characterising the professional identity of technical vocational teachers based on psychosociological indicators. The indicators are based on the scientific literature and refer to the representation of colleagues and the profession to oneself and the representation of oneself as a person. A questionnaire survey was submitted to two groups of teachers with several years of service. The first group was made up of teachers with a professional degree. The second group consisted of contract teachers who teach without a professional diploma. This study shows the existence of several identity profiles of technical vocational training (TVET) teachers in Senegal.

Keywords

Professional identity, beliefs, representations, knowledge

Résumé

Cet article présente une approche pour caractériser l'identité professionnelle des enseignants de formation professionnelle technique, basée sur des indicateurs psychosociologiques. Les indicateurs sont issus de la littérature scientifique et se réfèrent à la représentation des collègues et de la profession envers soi-même, ainsi

qu'à la représentation de soi en tant que personne. Un questionnaire a été soumis à deux groupes d'enseignants ayant plusieurs années d'expérience. Le premier groupe était composé d'enseignants ayant un diplôme professionnel. Le deuxième groupe était constitué d'enseignants contractuels qui enseignent sans diplôme professionnel. Cette étude met en évidence l'existence de plusieurs profils d'identité chez les enseignants de la formation professionnelle technique (TVET) au Sénégal.

Mots–Clés
Identité professionnelle, croyances, représentations, connaissance

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Introduction

In the past in Senegal, the training of engineers and senior technicians was dissociated from the training of teachers in two higher education institutions, including "École Normale Supérieure d'Enseignement Technique et Professionnelle" (ENSETP). But to optimise human resources, the ministry in charge of higher education merged these institutions into a single entity. For six years, the training of TVET technicians, engineers and teachers in Senegal has been grouped into a single university entity. This process resulted in the absence of teacher training in these fields, as students preferring to obtain an engineering degree - which is more remunerative and is more attractive - than become technology teachers. This has resulted in a major shortage of teachers.

Faced with this major problem, the State decided to give ENSETP back its autonomy. The primary mission of ENSETP is to train teachers in the fields of technology, mechanics, civil engineering, boiler making, etc. via a four-year or six-year university degree in technology. After graduation, these teachers will serve in Senegal's high schools and vocational training centres.

However, the State, unable to make up this major deficit, decided to recruit non-professional teachers with a two-year technical degree (Brevet de technicien supérieur - BTS), three-year university degree (Licence professionnelle) and engineering or master's degrees. These non-professional teachers are recruited as temporary employees, although they were intended to work in companies. After two years of service, they can, at their request, be trained at ENSETP for two years to become teaching professionals. Currently in training, these contractual teachers complete professionalisation courses

and courses in their subjects. The professionalisation courses are related to developmental psychology, teaching/learning theories and strategies, sociology, etc.

What are their motivations for becoming teachers? Some of them find that the working conditions in companies are very hard, others find it difficult to find a stable job. This suggests that teaching was not their first vocation. Moreover, these contractual workers already have experience in teaching and develop beliefs about the profession before they complete their professional training (Berger et al., 2018). Yet, some studies postulate that there is a relationship between teachers' beliefs and actions (Berger et al., 2018; Fives et al., 2015; Richardson, 1996). This may presage an identity difference between all these teachers. In this context, it is important to examine the different professional identities of these teachers.

Theorical setting

The concept of identity is widely debated in the scientific literature. However, several definitions are given to the concept which is a kind of generic term attached to various factors internal and external to the individual (Akerson et al., 2016). The factors that influence the development of professional identity are closely related to perceptions of oneself as a professional, the concepts on which this professional ideal is based (Haamer et al., 2012), as well as lived experiences and social interactions (Akerson et al., 2016). This professional identity is a dynamic (Cattonar et al., 2007; Gohier et al., 2007a), multifaceted and evolving process (Akerson et al., 2014), subject to learning, in the course of which the individual's personal history, psychological and cultural factors intervene (Lamote & Engels, 2010). It is a construct that develops over time (Cattonar et al., 2007), and requires a better understanding of professional practices, values, skills, knowledge required and practised within the profession (Chong et al., 2011; Gohier et al., 2007a).

The teacher's professional identity is related to the ideas and beliefs that teachers hold about their work and the skills required for the profession (Gohier et al., 2007a). According to Gohier et al. (2007a), professional identity is made up of two dimensions: the representation of colleagues and the profession to oneself and the representation of oneself as a person. This first dimension is made up of components relating to the social elements of identity: the relationship that the teacher has with his/her work, colleagues and learners. The second refers to the psycho-individual elements of identity, i.e., the relationship to the self and self-knowledge, beliefs, attitudes, and educational values advocated by the individual in line with his/her personal values.

Relationship to work

The teacher's relationship with his/her work is a very important element of profes-

sional identity. In this regard, it is important to know when the individual identifies with a teacher. For Ivanova & Skara-Mincane (2016), students begin to identify themselves as teachers through the learning processes during their training. Then, this identity is gradually shaped over time (Chong et al., 2011) and according to the context (Cattonar et al., 2007). In their studies, Cattonar et al. (2007) postulate that professional identity is related to the context in which teaching takes place. Thus, teachers' involvement in pedagogical facilitation activities contributes to the construction of a clear vision of the practice of the profession. For these authors, daily contact with learners and their colleagues influences the relational socialisation process of teachers. This socialisation involves understanding the theories of adolescent psychology (Cumming & Owen, 2001). Furthermore, Cumming & Owen (2001) consider that a professional teacher must practise innovative teaching while following a personal code of ethics for the benefit of learners. Innovation is achieved with innovative educators who possess in-depth knowledge of a range of topics and teaching strategies and an insatiable desire to improve their own practice (Cumming & Owen, 2001, pp. 3-4). In order to improve their practice a teacher must adopt a reflective approach. This reflexivity can be anticipatory and retrospective (Haamer et al., 2012; Pastré, 2011). In this regard, Pastré has showed that learning in situations of confrontation with problems takes place much more at the time of reflection on the action than at the time of the activity. Indeed, reflection is an opportunity to reconceptualise situations.

Relationship with colleagues

A teacher is part of a community of practice. And to this end, he/she is obliged to collaborate with his/her colleagues in his/her teaching activities. In this regard, teamwork and collaboration with parents and other stakeholders are considered very important elements in the teacher's work (Poom-Valickis & Löfström, 2019). This collaboration requires them to develop new skills in terms of communication and group management. It is through community of practice that collegial collaboration and reflection develop teachers' professional growth (Poom-Valickis & Löfström, 2019).

In addition, there is increasing discussion of the notion of teacher involvement in school activities. From this point of view, Park et al. (2005) have shown that teamwork is a significant predictor of teacher commitment. Thus, in order to create a professional identity within the work group, it is important for principals to consider strategies to strengthen teamwork (Park et al., 2005).

Relationship with learners

As Gohier et al. (2001, p. 11) have so clearly pointed out: "the primary purpose of the teacher is his disappearance". If the teacher succeeds in making himself/herself unnecessary, the students become autonomous (Zimmerman, 2002). Indeed, to carry out an

activity generally in life as a person, a certain amount of autonomy is required. One of the aims of academic learning is to train individuals to cope with everyday situations. To achieve this goal, it is important for the teacher to know how students learn. Indeed, according to Allen et al. (2016), a lack of knowledge of students' psychology hinders teachers' ability to effectively support their students' learning. Yet, psychology is a major component of general teacher training. However, it is generally found that novice teachers focus primarily on teaching the subject rather than on how to teach. Generally, it is with experience that teachers begin to deal with pedagogy (Haamer et al., 2012). This may explain the fact that experienced teachers feel better qualified to perform their duties more than novices (Makovec, 2018).

The teacher's work is an activity directed at others (Pastré, 2011), which cannot be carried out without a minimum of affective commitment to the students who are the object of the work. In this context, communicative competence and empathy are considered the most important characteristics in the pedagogical relationship (Haamer et al., 2012). In addition, the interactions arising from this pedagogical relationship contribute greatly to the development of the teacher's professional identity (Haamer et al., 2012).

Attitudes, beliefs, knowledge and values

For Haamer et al. (2012), a teacher's professional identity is based on the core beliefs one holds about teaching and as a teacher. Previous and current experiences play an important role in the formation of beliefs, knowledge and skills (Ivanova & Skara-Mincane, 2016). These beliefs are continuously formed and reformed through experience. Knowledge, derived from beliefs (Crahay et al., 2013), can come from teachers' initial training, as it can be derived from experience through in-service training and professional practices (Chong et al., 2011). In their professional practices, teachers use several teaching strategies according to their belief system (Caine & Caine, 1997). Teachers' beliefs strongly influence their actions, and serve as their guide (Berger et al., 2018; Caine & Caine, 1997). The posture or attitude adopted in practices is dictated by the beliefs that underlie them (Richardson, 1996). Thus, teachers' self-esteem is closely related to their self-efficacy, which is perceived as an indicator of their professional identity (Canrinus et al., 2012; Fives et al., 2015; Siwatu et al., 2016).

Relational behaviours and skills

An essential component of the representation of oneself as a teacher concerns one's skills and conduct in one's practices. In addition to collaboration, teachers are increasingly required to have certain skills that are unique to their work in order to operate in a complex environment where situations are unpredictable. Beyond the characteristics related to the various subjects and programs taught, the relational dimension

remains a constant at the heart of teaching practice (Gohier et al., 2007b). Teaching involves interactions, which can raise ethical issues (Gohier et al., 2007b). To deal with these situations, the teacher must have a certain autonomy of action, especially in the classroom. How is this autonomy envisaged? This autonomy is envisaged for the teacher as the freedom and internal ability to exercise discretion in the implementation of programs (Benson, 2016). This means that the teacher cannot simply reproduce only what is prescribed in the curriculum. He must constantly modify his role to fit the role of his students to help them be autonomous (Ramos, 2006). He is someone who is free to make his pedagogical decisions, decides what and how to do his work, takes initiatives, makes proposals and implements them (Benson, 2016).

Methodology

Our methodological principles are based on our main idea, which is to analyse identity profiles. As explained above, the context of the study is marked by the existence in the teaching body of contractual teachers who do not have a professional diploma. The methodology consisted of collecting teachers' beliefs about their professional identity by questionnaire.

Profile of participants

The participants in this research were 168 teachers, of whom 151 were men and 17 women. Girls account for an average of 30% of students in scientific and technical courses in Senegal. This explains the low number of girls in vocational and technical training in Senegal.

Of the target audience, only 60 participants were full time teachers. The 108 contract teachers were made up of two groups. The first group was made up of 55 people who had had a teaching degree for less than two years. For the first two years after graduation, they were recruited into the civil service as contract teachers before being hired on a permanent contract. The second group was made up of individuals who had obtained a technical vocational diploma, recruited in this capacity to teach in secondary schools and training centres. The second group consists of 53 individuals with a technical vocational diploma, recruited as such to teach in secondary schools and training centres. They know the basics of the subject matter they teach. They are temporary teachers after two years and then become contract teachers. They keep this status until they have completed the diploma course. However, it is important to remember that the contract teachers who participated in this survey were all in training at ENSETP at the time of the study.

Overall, 115 participants had vocational degrees: 80 had a four-year university degree (Certificat d'Aptitude à l'Enseignement Moyen Technique et Pratique - CAEMTP) and

35 had a six-year university degree (Certificat d'Aptitude à l'Enseignement Secondaire Technique et Professionnel - CAESTP). The remaining 115 are contract teachers with non-professional degrees such as the BTS (26), Master (14), Bachelor (10) and Engineering (03).

TABLE 1

Number and percentages of teachers by degree

Diploma	Number	%
CAEMTP	80	47.619
CAESTP	35	20.833
BTS	26	15.476
Master	14	8.333
Bachelor	10	5.952
Engineer	3	1.786

In addition, 96 teachers had between six and ten years of teaching experience, while 31 had between two and five years.

TABLE 2

Number and percentages of teachers by number of years of experience

Years of experience	Workforce	%
6-10 years	96	57.143
2-5 years	31	18.452
< 2 years	20	11.905
11-15 years	17	10.119
16-20 years	2	1.19
21-25 years	1	0.595
> 25 years	1	0.595

The research device

Our study is based on a survey administered online with the Sphinx software over a one-month period. In addition to socio-demographic characteristics, the survey consists of 41 items for 17 indicators of professional identity.

The theoretical framework of our research provided us with 17 indicators that allowed us to identify the teachers' professional identity. These indicators were, on the one hand, teachers' representations of themselves as individuals and, on the other hand, of their colleagues and their profession. The main indicators identified in the theoretical framework are listed in the Table 3 below:

TABLE 3

Summary table of professional identity indicators

Concept	Dimensions	Components	Indicators
The professional identity of teachers	Representation of colleagues and the profession to oneself	The relationship to work	Involvement in the community
			Pedagogical innovations
			Mastery of theoretical and practical knowledge
			Ethics and deontology
			Reflective capacity
		Relationship with colleagues	Types of relationships with colleagues
			Reception in the professional environment
			Ability to work in a team
		Relationship with learners	Learner autonomy
			Pedagogical relationship
			Quality of empathy
	Representation of oneself as a person	Attitudes, beliefs, knowledge and values	Theoretical, practical and action knowledge
			Search for new knowledge
			Caring for colleagues
			Self-esteem
		Relational behaviours and skills	Interpersonal skills
			Autonomy

Representations are important elements for gaining access, in part, to the teachers' actions. We used the variables derived from these indicators to determine teachers' identity profiles. To collect these representations, we opted for the questionnaire with the aim of understanding the private behaviours linked to the teachers' ways of doing things (Pourtois & Desmet, 2007).

The approach we adopted in this questionnaire was exploratory and descriptive. Its aim was to identify teachers' representations of categories of a population. To this end, and in view of the very large amount of data, we used a multiple correspondence analysis (Lebart & Saporta, 2014). For the design of the questionnaire, we opted for closed-ended questions that offered greater convenience of use (Ghiglione & Matalon,

1998). We constructed the questions on the basis of a four-level Lickert scale ("Strongly agree", "Agree", "Disagree" and "Strongly disagree").

The number of indicators we have in this study implies a high number of variables. This makes it difficult to correlate them two by two. Consequently, we cannot be satisfied with bivariate relationships, and we will have to resort to multivariate descriptive techniques to simplify the data. Thus, the responses to the questionnaire are then coded and processed according to a multiple correspondence analysis (MCA) in order to "apprehend a complex set of data and give an overview of the phenomenon in its entirety" (Pourtois & Desmet, 2007, p. 166). The MCA provides numerical indices to aid interpretation. These numerical indices are the eigenvalues, the contributions of the variables and the cosines squared.

Another important element for the analysis is the total variance that is distributed over the different successive axes. Each variable projected onto the plane contributes to the variance on the relevant axis. When this contribution is high on an axis, it means that the information contained in the modality or in the variable is largely found on that axis. The proportion of the total variance contained on the axis is measured by the eigenvalue of that axis expressed as a percentage. If the eigenvalue of an axis is low, it contains little information in the scatterplot; therefore, the axis can be ignored in the analysis.

The squared cosine is a measure of the quality of the representation of the variables on the graphs. This parameter depends very much on the number of variables. The higher the number of variables, the lower the quality of the representation.

The MCA is followed by a hierarchical ascending classification (HAC) applied on the coordinates of the complete disjunctive table (CDT) (Saporta, 2006, p. 259). This classification will allow us to obtain groups that are as homogeneous as possible (intra-class homogeneity), with each group being well differentiated from the others (inter-class heterogeneity). This type of classification was chosen because, a priori, the number of classes is not known. We use this type of classification according to Ward's method since the data in the disjunctive table are Euclidean.

A usual classification criterion consists of seeking the partition such that the intra-class inertia (or intra-class variance) is minimal in order to have, on average, very homogeneous classes, which amounts to seeking a maximum inter-class inertia (or inter-class variance) (Saporta, 2006, p. 250). A hierarchical classification is represented by a dendrogram or classification tree.

Data processing and results

The survey of vocational and technical training teachers in Senegal was based on five components of their professional identity consisting of 17 indicators. The 17 indicators

were made up of 68 items. Each item constituted an active variable, most of which required the respondent to choose one (and only one) answer from the modalities. In addition to the active variables, we also had signalling, which consisted of five additional variables that characterise individuals (gender, marital status, status, degree obtained and years of experience of teachers). These additional variables will not be used to the determination of the classes. They will allow us to determine how the different categories of the population represent themselves from the point of view of identity.

The global MCA performed on the 68 active variables and the nine illustrative variables shows that our subsequent analyses can be performed on the first three factorial axes (F1, F2 and F3) which alone explain 52.134% of the total adjusted inertia (Table 4).

TABLE 4

Eigenvalues and adjusted inertia on the first 5 axes

	F1	F2	F3	F4	F5
Eigenvalue	0.211	0.092	0.079	0.066	0.064
Inertia (%)	7.399	3.211	2.759	2.327	2.236
Cumulative %	7.399	10.610	13.369	15.696	17.932
Adjusted inertia	0.040	0.006	0.004	0.003	0.002
Adjusted inertia (%)	**41.391**	**6.347**	**4.396**	2.867	2.585
Cumulative %	41.391	47.738	**52.134**	55.001	57.586

The results of the MCA show that some variables did not contribute much to the formation of the factorial axes. To verify this information, we calculate the ratio of one to 268 modalities which was equal to 0.0037. This value was the average of the total contributions. Thus, only those variables whose contribution was greater than or equal to 0.0037, with a non-zero relative weight, will be retained for further analysis. The consistency of the test values and the cosines of the variables were also taken into account.

The MCA shows the weakness of some modalities which translated into a low relative weight with a high contribution to the formation of the factorial axes. These rare modalities, which contributed strongly to the formation of the factorial axes, disturb the analysis. Their extraction from the complete disjunctive table (CDT) allowed us to redo the MCA which was much closer to reality. The rare modalities, extracted from the table, reduce the indicators as well.

The additional or illustrative data retained were characteristic of the gender, marital status, status, diploma obtained and number of years of experience of the teachers.

The reduced-methods MCA shows that the first three factorial axes accounted for 75.57% of the adjusted inertia. This value was more than sufficient to analyse the results (Table 5).

TABLE 5

Eigenvalues and adjusted inertia from the reduced-methods of the MCA

	F1	F2	F3	F4	F5
Eigenvalue	0.141	0.041	0.033	0.029	0.026
Inertia (%)	14.074	4.088	3.321	2.883	2.593
Cumulative %	14.074	18.162	21.483	24.366	26.960
Adjusted inertia	0.018	0.001	0.001	0.000	0.000
Adjusted inertia (%)	**68.495**	**4.424**	**2.655**	1.846	1.392
Cumulative %	68.495	72.919	**75.574**	77.421	78.812

The MCA performed on the reduced data allowed us to retain 12 indicators to characterise teachers (Table 6).

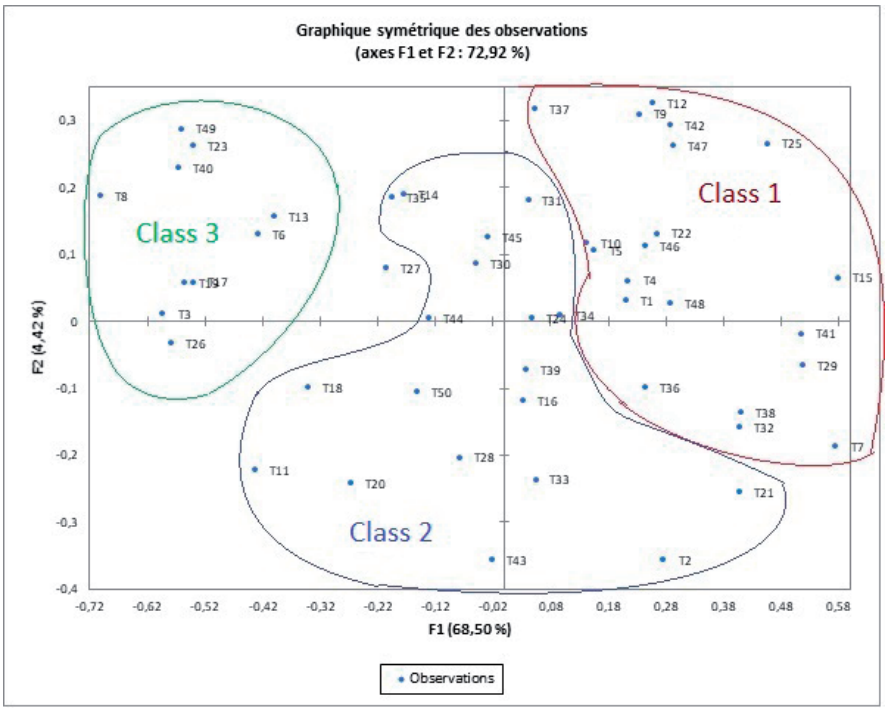
TABLE 6

Indicators retained after extraction of rare modalities

Concept	Dimensions	Components	Indicators
The professional identity of teachers	The representation of colleagues and the profession to oneself	The relationship to work	Mastery of theoretical and practical knowledge
			Ethics and deontology
			Reflective capacity
		The relationship with colleagues	Types of relationships with colleagues
			Reception in the professional environment
			Ability to work in a team
		The relationship with learners	Learner autonomy
			Pedagogical relationship
			Quality of empathy
	The representation of oneself as a person	Attitudes, beliefs, knowledge and values	Self-esteem
		Relational behaviours and skills	Relationship skills
			Autonomy

In order to characterise the teachers' professional identity, we used a hierarchical ascending classification (HAC) on the coordinates of the complete disjunctive table (CDT) based on the 12 indicators from the MCA. In principle, the number of classes is not known and is calculated directly by the software. The classification carried out using Ward's method provided us with three distinct groups of teachers (Figure 1).

FIGURE 1



Classification of individuals into three distinct classes

In terms of numbers, the three classes present a heterogeneous structure with 76, 46 and 46 individuals respectively (Table 7).

TABLE 7

Results by Class

Class	1	2	3
Individuals	76	46	46
Sum of weights	76	46	46
Within-class variance	27.398	26.883	21.961

Class 3, composed of 46 individuals, has lower intra-class variance (21.961) than classes 1 and 2 (intra-class variances of 27.398 and 26.883 respectively). It is more homogeneous than classes 1 and 2.

TABLE 8

Variance decomposition for optimal classification

	Absolute	Percentage
Intra-class	25.775	88.23%
Inter-classes	3.438	11.77%
Total	29.212	100%

In absolute terms, the hierarchical bottom-up classification provides us with an intra-class variance of 25.77% (i.e., 88.23%) and an inter-class variance of 3.44% (i.e. 11.77%) i.e. a total variance of 29.21% (100%) (Table 8).

TABLE 9

Distances between class barycentres

Classes	1	2	3
1	0	2.937	4.274
2	2.937	0	2.289
3	4.274	2.289	0

In Figure 1, we notice a clear opposition between classes 1 and 3. This is confirmed by the distance between the barycentres of the two classes (4.274) which is much greater than that between classes 3 and 2 (2.289). This means that from the point of view of identity, the individuals in classes 2 and 3 are closer (Table 9). To characterise the teachers of the three classes, the focus is on the central objects. The central objects or paragons are the individuals who are closest to the centres of gravity. The profile of each central object characterises the class to which it belongs. These individuals are teachers T15, T60 and T8 who represent the central objects of classes 1, 2 and 3 respectively (Table 10).

TABLE 10

Distance between central objects

Central objects	1 (T15)	2 (T60)	3 (T8)
1 (T15)	0	7.810	9.055
2 (T60)	7.810	0	5.745
3 (T8)	9.055	5.745	0

A comparative analysis of the identity profiles of the teachers of the 3 classes was made on a summary of the indicators. However, not all active variables present in the three classes of teachers. We believed that it was more appropriate to retain, for the analysis, only the active variables present in the three classes. As a result, 11 indicators were retained for a total of 19 active variables.

The active variables selected are listed in the summary table below (Table 11).

TABLE 11

Summary of variables and their modalities by class

			Modalities		
Components	**Indicators**	**Variables**	**Class 1**	**Class 2**	**Class 3**
Relationship to work	Mastery of theoretical and practical knowledge	Q5. What makes a good teacher is above all the knowledge of the psychology of the students	A	A	SA
	Ethics and deontology	Q10. The teacher's job requires a mode of communication beneficial to all students	SA	SA	SA
		Q11. The teacher's job requires that all students progress	SA	SA	SA
		Q12. The teacher's job requires facilitating the expression of each individual	SA	SA	SA
	Reflective capacity	Q21. A good teacher applies the teaching methods prescribed by the curriculum	A	SA	SA
The relationship to colleagues	Types of relationships with colleagues	Q25. I have a good relationship with most of my colleagues	A	SA	SA
	Reception in the professional environment	Q28. I was well received by the older ones	A	SA	SA
		Q30. My integration into the institution was easy	A	SA	SA
	Ability to work in a team	Q32. This can help us prepare our courses	A	SA	SA
Relationship with learners	Learner autonomy	Q39. The teacher's main role is to encourage students to consult other sources of information.	A	SA	SA
		Q40. The main role of the teacher is to teach students to think for themselves	A	A	SA
	Pedagogical relationship	Q41. Are your interventions in the classroom geared more towards the supposedly stronger students?	D	SD	SD
		Q43. Are your classroom interventions more focused on all students?	SA	SA	SA
	Quality of empathy	Q51. For the teaching relationship to be established normally, students must like the subject	A	SA	SA

TABLE 11

			Modalities		
Components	**Indicators**	**Variables**	**Class 1**	**Class 2**	**Class 3**
Attitudes, beliefs, knowledge and values	Self-esteem	Q62. All of my students appreciate me very much as a teacher	A	A	SA
		Q64. I have a perfect command of the content taught	A	A	SA
		Q65. I have a good command of the curriculum to be taught	A	A	A
		Q66. I am very good at planning my teaching/learning activities	A	A	SA
Relational behaviours and skills	Interpersonal skills	Q72. A good teacher must deal with conflict in a constructive manner	A	SA	SA

Identity profile of class 1 teachers

TABLE 12

Socio-demographic characteristics of class 1 teachers

Status		**Diplomas**						**Age group (Mode)**
Contractual	Permanent contract	BTS[1]	CAEMTP[2]	CAESTP[3]	Engineer	Bachelor	Master	6-10 years
51	25	9	31	22	3	2	9	36
67.11%	32.89%	11.84%	40.79%	28.95%	3.95%	2.63%	11.84%	47.37%

1. Brevet de technicien supérieur
2. Certificat d'aptitude à l'enseignement moyen technique et pratique
3. Certificat d'aptitude à l'enseignement secondaire technique et professionnel

Class 1 was made up of 76 teachers, 67.11% of whom were on a temporary contract and 32.89% of whom had a permanent contract (Table 12). Among these 76 teachers, 69.74% were graduates but 36.85% of them did not yet have permanent contracts. In fact, they had completed less than two years of service after obtaining their diploma. In terms of professional experience, 47.37% of the teachers were in the 6- and 10-year age group; which means that many of the graduates had taught for several years before

taking a degree course. However, the central object of this class was a contract teacher who had a Master's degree and had teaching experience of between 2 and 5 years.

In relation to their work, class 1 teachers were characterised by a good mastery of theoretical knowledge that had contributed greatly to their knowledge of the psychology of learners. They had very good knowledge of the ethical and deontological rules related to their own mode of communication, free expression and learners' progress. But they were not very reflective in the application of the teaching methods prescribed in the curricula.

Maintaining good relationships with their colleagues, they had integrated well into their professional environment and had a good capacity to work as a team in the preparation of their courses.

However, they were dubious about their relationship with learners. Indeed, in terms of autonomy, they agreed that the teacher must encourage learners to look for other sources of information outside the course and to think for themselves. In teaching/learning situations, they strongly oriented their interventions towards all students and a little less towards those who were supposed to be the strongest. Nevertheless, they thought that the relationship was facilitated more if the students liked the subject.

These practitioners also had good self-esteem. They believed that they had a good command of the content, the curriculum, and the planning of their teaching/learning activities and that they are valued by their students. They also believed that a good teacher must have good interpersonal skills in order to deal with conflicts among students in a constructive manner.

Identity profile of class 2 teachers

TABLE 13

Socio-demographic characteristics of class 2 teachers

Status		**Diplomas**						**Age group (Mode)**
Contractual	Permanent contract	BTS	CAEMTP	CAESTP	Engineer	Bachelor	Master	6-10 years
28	18	9	25	5	0	4	3	34,000
60.87%	39.13%	18.56%	54.35%	10.87%	0.00%	8.70%	6.52%	73.91%

Class 2 was made up of 46 teachers, 60.87% of whom were contract teachers and 39.13% of whom were permanent (Table 13). 65.22% of teachers had a professional teaching diploma. As with class 1, 73.91% were professional teachers with between

6- and 10-years' experience. The central object of this class was a contractual teacher with a BTS who had had between 6 and 10 years of professional experience.

From the point of view of their relationship to work, class 2 teachers had exactly the same identity profile as those of class 1 teachers. However, they were less reflective than their class 1 colleagues with regard to the application of the teaching methods prescribed in the curricula. Indeed, they thought that these pedagogical methods should be applied as prescribed.

Compared to their colleagues, these practitioners had an excellent relationship with them, especially since they had made them feel very good by facilitating their integration. These excellent relationships facilitated their ability to work with them as a team in preparing their courses.

Furthermore, they advocated the autonomy of learners by encouraging them to explore other sources of information and to think for themselves. To facilitate the pedagogical relationship, they believed that their interventions should not be discriminatory, but rather directed towards all students. This relationship was also facilitated when students liked the subject.

These practitioners also saw themselves as good teachers. They believed that they had a good command of the content, the curriculum, and the planning of their teaching / learning activities and that they were valued by their students.

Beyond these pedagogical skills, they believed that relational skills played a fundamental role in managing conflicts between students.

Identity profile of class 3 teachers

TABLE 14

Socio-demographic characteristics of class 3 teachers

Status		**Diploma**						**Age group (Mode)**
Contractual	Permanent contract	BTS	CAEMTP	CAESTP	Engineer	Bachelor	Master	6-10 years
29	17	8	24	8	0	4	2	26
63.04	36.96	17.39	52.17	17.39	0.00%	8.69	4.35	56.52%

Like class 2, it was made up of 46 teachers, 62.22% of whom were on contract and 37.78% of teachers (Table 14). 71.11% of teachers had a professional teaching diploma. As in the other two classes, 57.78% were professional teachers with between 6- and 10-years' experience. The central object of this class was a contractual teacher with a BTS who had accumulated between 6 and 10 years of professional experience.

Compared to the teachers of the two previous classes, these teachers were characterised by a strong knowledge of theoretical knowledge related to the psychology of the students. This strong conviction was also present in ethical and deontological issues. Indeed, they believed that a mode of communication that is beneficial to all learners, the constant search for their progress and the facilitation of their free expression are an integral part of the teacher's job.

Compared to their colleagues, the excellent reception they received from them greatly facilitated their integration into their respective institutions. In the same vein was their ability to work as a team in the preparation of their courses.

In relation to learners, these teachers strongly believed that their role was to encourage students to seek for other sources of information outside the classroom. In addition, they believed that a teacher should teach students to think for themselves. From the point of view of the pedagogical relationship, they strongly believed that the teacher should never focus only on the supposedly strongest students. Rather, the teacher's interventions should be directed at all students and encourage them to enjoy the subject more.

They also had a very positive attitude towards themselves. Indeed, they strongly believed that they are appreciated by their students. With regard to the content and planning of their teaching/learning, they considered that they have a perfect command of it. However, the teaching program was not very well mastered. From a relational point of view, they believed that a teacher should be able to handle conflicts between students in a constructive manner.

CONCLUSION

The purpose of this exploratory and descriptive research was to characterise the professional identity of FPT teachers in Senegal. To do this, we used the scientific literature to identify the indicators of teachers' professional identity in order to construct a questionnaire to collect their representations of the concept. This questionnaire was built around five components of teachers' professional identity: their relationship to work, their relationship to colleagues, their relationship to learners, their beliefs, attitudes, knowledge and values as well as their conduct and skills. From these components, 17 indicators of professional identity, and of their behaviour and skills, are

derived. These components produced 68 active variables and 5 additional variables constituting the signalling.

The multiple correspondence analysis, followed by the ascending hierarchical classification, allowed us to identify 3 classes of teachers. The analysis of the typology showed many similarities between classes 2 and 3 from the point of view of identity. Indeed, of the 19 variables selected, the representations of teachers were similar on all 14. They had the same representations on issues related to ethics and deontology, reflexivity, relationships with their colleagues, including their ability to work in a team, pedagogical relationship, quality of empathy and relational skills. For individuals who have been expected to identify with a teacher since they were students (Ivanova & Skara-Mincane, 2016), professional experience between 6 and 10 years is a good benchmark for their professional identity. Secondly, their adherence to collaborative work is a significant predictor of their commitment (Park et al., 2005); this further clarifies their vision of their professional practice (Cattonar et al., 2007), and contributes to relational socialisation with their colleges (Cumming & Owen, 2001) and their professional development growth (Poom-Valickis & Löfström, 2019). In addition to this socialisation with peers, it is also very present following interactions with students. In this pedagogical relationship, knowledge of communication methods and the quality of empathy are considered important characteristics for the development of teachers' professional identity (Haamer et al., 2012).

Teachers have a strong understanding of the issues related to these indicators and identify themselves as professional teachers. However, there were still differences between classes 2 and 3, in terms of self-esteem, knowledge of psychology and the quest for learner autonomy. Class 3 teachers had a much higher self-esteem than class 2 teachers. And when we know that teachers' beliefs greatly influence their actions and serve as a guide (Berger et al., 2018; Caine & Caine, 1997), it can be said that those in class 3 had higher self-efficacy (Canrinus et al., 2012; Fives et al., 2015; Siwatu et al., 2016). Their greater knowledge of student psychology also increased their ability to effectively support their students' learning (Allen et al., 2016).

Classes 2 and 3 teachers had better professional identity development than class 1 teachers. Better still, the teachers of classes 1 and 3 were a little further apart in terms of their identity. In fact, apart from the indicators relating to ethics and deontology, their representations were different but not contradictory. Class 1 teachers did not seem to be very sure of their opinions on most items by generally "agreeing" and rarely "strongly agreeing". This information invites us to be cautious about the attitude these teachers should have in teaching situations in regard to these beliefs.

However, an interesting fact should be noted. All the central objects that characterise all 3 classes were contract teachers who did not yet have their professional teaching diploma. All classes were characterised by non-professionals. Another interesting fact is

that all the teachers, both permanent and contract, had a belief system that made them think that they generally identify with a professional teacher.

In any case, it should be noted that the teachers of the three classes were not too far apart in terms of professional identity. The fact that contract teachers who had yet to obtain their diploma were in training at ENSETP, suggests that psycho-socio-pedagogical knowledge is not unfamiliar to them. What about the application of this knowledge in teaching/learning situations? It is known that novices referred much more to disciplinary knowledge than to psycho-pedagogical knowledge in teaching/learning situations (Diagne, 2018; Haamer et al., 2012). It is only several years later with experience that they really start to focus on psycho-pedagogical aspects. This thesis confirms that the development of teachers' professional identity is a dynamic, non-linear process that depends on many factors.

However, the differences in identity noted between these three groups of teachers constitute points of attention to be taken into account in training. Indeed, self-esteem, knowledge of learners' psychology and the search for autonomy are important anchor points in teaching/learning strategies. Self-esteem is a concept that needs to be further developed in teacher training because a teacher who is not confident can neither develop confidence in a learner, let alone teach them autonomy.

This study of professional identity, which was based on the representations of FPT teachers, is limited. Cross-referencing these representations with an observation of the classroom practices of a representative sample of these teachers would have provided much more conclusive results on identity profiles.

References

Akerson, V. L., Pongsanon, K., Weiland, I. S., & Nargund-Joshi, V. (2014). Developing a professional identity as an elementary teacher of Nature of Science: A self-study of becoming an elementary teacher. *International Journal of Science Education, 36*(12), 2055-2082.

Akerson, V. L., Carter, I. S., & Elcan, N. (2016). On the nature of professional identity for Nature of Science. In L. Avraamidou (Éd.), *Studying Science teacher identity* (pp. 89-110). SensePublishers.

Allen, J., Park Rogers, M., & Borowski, R. (2016). "I am out of my comfort zone": Self-study of the struggle of adapting to the professional identity of a teacher educator. *Studying Teacher Education, 12*(3), 320-332.

Benson, P. (2010). Teacher education and teacher autonomy: Creating spaces for experimentation in secondary school English language teaching. *Language Teaching Research, 14*(3), 259-275.

Berger, J.-L., Girardet, C., Vaudroz, C., & Crahay, M. (2018). Teaching experience, teachers' beliefs, and self-reported classroom management practices: A coherent network. *SAGE Open, 8*(1), 215824401775411.

Caine, R. N., & Caine, G. (1997). *Education on the edge of possibility*. Association for Supervision and Curriculum Development.

Canrinus, E. T., Helms-Lorenz, M., Beijaard, D., Buitink, J., & Hofman, A. (2012). Self-efficacy, job

satisfaction, motivation and commitment: Exploring the relationships between indicators of teachers' professional identity. *European Journal of Psychology of Education, 27*(1), 115-132.

Cattonar, B., Draelants, H., & Dumay, X. (2007). Exploring the interplay between organizational and professional identity. *Les Cahiers de Recherche en Éducation et Formation, 54*, 1-24.

Chong, S., Low, E. L., & Goh, K. C. (2011). Developing student teachers' professional identities – An exploratory study. *International Education Studies, 4*(1), 30-38.

Crahay, M., Marbaise, C., & Issaieva, E. (2013). What is teachers' belief in the virtues of student retention founded on? *Italian Journal of Educational Research, 11*, 75-94.

Cumming, J., & Owen, C. (2001). *Reforming schools through innovative teaching*. Retrieved from https://files.eric.ed.gov/fulltext/ED456268.pdf.

Diagne, B. D. (2018). *Étude du développement professionnel des enseignants de fabrication mécanique au Sénégal.* Thèse de doctorat, Aix-Marseille Université & Université Cheikh Anta Diop de Dakar.

Fives, H., Lacatena, N., & Gerard, L. (2015). Teachers' beliefs about teaching (and learning). In H. Fives & M. G. Gill (Eds.), *International handbook of research on teachers' beliefs* (pp. 249-265). Routledge.

Ghiglione, R., & Matalon, B. (1998). *Les enquêtes sociologiques. Théories et pratiques*. Armand Colin.

Gohier, C., Chevrier, J., & Anadón, M. (2007a). Future teachers' identity: Between an idealistic vision and a realistic view. *McGill Journal of Education, 42*(1), 141-156.

Gohier, C., Jutras, F., & Desautels, L. (2007b). *Ethical issues of college teaching professionals*. *Pédagogie Collégiale, 20*(2), 1-5.

Gohier, C., Anadón, M., Bouchard, Y., Charbonneau, B., & Chevrier, J. (2001). La construction identitaire de l'enseignant sur le plan professionnel: Un processus dynamique et interactif. *Revue des Sciences de l'Éducation, 27*(1), 3-32.

Haamer, A., Lepp, L., & Reva, E. (2012). The dynamics of professional identity of university teachers: Reflecting on the ideal university teacher. *Studies for the Learning Society, 2*(2-3), 110-120.

Ivanova, I., & Skara-Mincane, R. (2016). Development of professional identity during teacher's practice. *Procedia - Social and Behavioral Sciences, 232*, 529-536.

Lamote, C., & Engels, N. (2010). The development of student teachers' professional identity. *European Journal of Teacher Education, 33*(1), 3-18.

Lebart, L., & Saporta, G. (2014). Historical elements of correspondence analysis and multiple correspondence analysis. In J. Blasius & M. Greenacre (Eds.), *Visualization et verbalization of data* (pp. 31-44). Taylor & Francis Group.

Makovec, D. (2018). The teacher's role and professional development. *International Journal of Cognitive Research in Science Engineering and Education, 6*, 33-45.

Park, S., Henkin, A. B., & Egley, R. (2005). Teacher team commitment, teamwork and trust: Exploring associations. *Journal of Educational Administration, 43*(5), 462-479.

Pastré, P. (2011). *La didactique professionnelle. Approche anthropologique du développement chez les adultes*. Paris, France: Presses Universitaires de France.

Poom-Valickis, K., & Löfström, E. (2019). "Pupils should have respect for you, although I have no idea how to achieve this?": The ideals and experiences shaping a teacher's professional identity. *Educational Studies, 45*(2), 145-162.

Pourtois, J.-P., & Desmet, H. (2007). *Épistémologie et instrumentation en sciences humaines*. Mardaga.

Ramos, R. C. (2006). Considerations on the role of teacher autonomy. *Colombian Applied Linguistics Journal, 8*, 183-202.

Richardson, V. (1996). The role of attitudes and beliefs in learning to teach. In J. Sikula (Ed.), *Handbook of research on teacher education* (pp. 102-119). New York: Macmillan.

Saporta, G. (2006). *Probabilités, analyse des données et statistique*. Paris: TECHNIP.

Siwatu, K. O., Chesnut, S. R., Alejandro, A. Y., & Young, H. A. (2016). Examining preservice teachers' culturally responsive teaching self-efficacy doubts. *The Teacher Educator, 51*(4), 277-296.

Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. *Theory Into Practice, 41*(2), 64-70.