Training Evaluation in a Learning Organization and Online Training Through the E-booklet Contribution of Game Theory and Shapley Value

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Abstract. This work focuses on the question of apprenticeship in French universities in relation to apprenticeship training centers and companies where the apprentice completes his internship and the definition of this new learning structure. One of the problems in this structure is the difficulty of making it work effectively through an artifact called the e-learning booklet. This brochure in the new organization should be used as a support tool for the apprentice and will contain all the knowledge and skills acquired, including know-how. This tool is relatively difficult to complete because there are few incentive tools and seems to be more a constraint when it should be an asset for the entire learning structure. In this work we will discuss the role of the lifelong learning process in France and the increased professional integration in relation to the status of apprentices and the behavior of the student-apprentice compared to a classical student. We will discuss, through game theory and Shapley's work, on what would be the value of each of the actors would be and which could lead to more effective tools to complement this electronic booklet and how to obtain greater value in terms of content that can be analyzed through textometrics and lexicometrics tools. This tool will contain both the strengths and weaknesses of the student and, above all, how it can be remedied mainly by on-line but also off-line tools, thereby improving the training process and ensuring that this tripartite organization: University - Apprentice – CFA, plays its full role as a learning organization. The student puts performance related information in a booklet which will be considered in the future in France as a companion describing his or her graduation results and skills.

Keywords: Apprenticeship · Learning organization · Game theory
Shapley value

1 Introduction

This work is part of the learning structure analysis [1] which is quite developed in France, namely the Apprenticeship Training Center. First of all, it should be agreed for structural reasons that learning is a transfer from national education to the regions, on

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the assumption that this new organization will be better able at measuring the needs of employment in a territory. In fact, even still now, it's the regions that decide the creation of specific training centers, whether or not in link with universities. In order to improve the professional integration of students from universities who were experiencing a real integration is a problem despite the existence in most programs of compulsory internships, it was initiated a new policy that requires the establishment of this same strategy by changing the management structures and new organizational modalities that led to the establishment of a training center for apprentices open to universities. As a result, the number of apprentices in France has risen from 100,000 in the 1980s to 400,000 today. This increase is mainly due to the additional number of vocational baccalaureates (100,000), BTS (70,000) and university (Bac + 3 to Bac + 5), which have a workforce of around 60,000, mostly in the service sector (60% of apprentices) [2]; It is clear that today the positive effects of apprenticeship has been observed in the integration of young people into the labor market, with access to employment being faster for former apprentices [3].

However, there is a contrast between training and level of training. The DUT and BTS have a highly student-oriented workforce, as well as professional licenses or master's degrees, some of which specialties have up to 80% of their enrollment in apprenticeships, particularly within University Paris Est Marne [4]. The device that is set up for the apprentice's follow-up, namely the e-booklet, would then, if properly used and filled, become a lever to transform the CFA into a learning organization. This system enables it to improve the processes put in place to monitor the apprentice and to propose areas for development to create added value beyond the administrative follow-up of apprentices. In fact, this poorly informed and little used tool in a general way will allow to create new solutions to better develop the internal competences but also their apprentices who are part of the structure during their learning. It is for this reason that we have made the decision to denote that the CFA can become a "learning organization". Indeed, this tool can become a matrix that will allow to set up new training logics through a new learning tools such as e-learning, serious or business game and which are absent from this organization nowadays.

2 The Logic of Training in the Learning Organization

The notion of learning organization is based on the idea that an organization's ability to learn is its main source of competitiveness, inferring a particular mode of organization [5]. The learning organization is built around the acquisition of professional skills and not professional qualifications and what will possible within the framework of the undertakings that are given to the CFA since it is mainly the follow-up of the apprentices. This is what allows the best professional integration compared to a traditional student who simply does an internship and who as a general rule is less valued. This new logic of learning leads to a new training landscape in which the CFA will want to play a preponderant role by its positioning and will mainly become accountant training actions. In particular, it will impose a skills-based approach on the Universities as the numbers become more and more important and the measurement tools are little or not at all adapted to this new approach. It is certain that this organizational flaw can

create a dysfunction of the device and besides the tools put in place are often criticized because of their weak use and especially of their feeble analysis.

Historically and in the classical university schema, the student completes an internship at the end of his academic year and in this context few links are made with the company except at the end of internship where the student describes his work, which is evaluated by a university jury, sometimes attended by professionals. Apprenticeship, on the other hand, is a form of co-training, both in university and in business, with a shared responsibility and subject to a double evaluation, namely the knowledge acquired and the skills developed. The learning organization is characterized by the implementation of an intellectual reflection accompanying the act of production and allowing the development of the capacities of the individuals who compose it. "*An individual can be confronted with a variety of situations that engender a truly transposable experience and that generate learning and move towards competence*" [6]. In the same vein, the construction and development of skills is no longer a matter of training alone, but also of professionalization, including the passage through training situations and simple work situations made professional [7, 8].

It is therefore a matter of learning in and by the organization where the organizational framework constitutes a context that enables the learning processes. The competency approach provides a link between the explicit knowledge that comes from academic training and that can be transferred to learners and the know-how that is the result of a business practice. These two skills will form the basis of competence that the learner will acquire during his/her academic year and which should correspond to the different skill blocks that have been formally described and which will lead to the materialization of a learning action, and the integration of the learner into the world of work. Learning more in a shorter amount of time is of greater importance than the duration of the internship and allows through scenarios to build skills in action. This long and enriching experience through the various scenarios is only possible if all actors are strongly involved and implicated in the learning organization namely the company, the university and the essential role of the CFA which must be engaged in the training process, participating in the diagnosis and putting in place the necessary solutions for the production of the necessary knowledge and through the follow-up and accompaniment of the learner. The latter must be in the main agent's master plan to obtain the acquisition of these skill blocks [9].

In this process it is essential that the actors know the role that is given to them to make the necessary arrangements for the success of this action. It is important for the learner in this organization to ensure that everyone's role is fulfilled and that he becomes the master of his destiny and not merely a passive actor, which is often the attitude observed in the field. In this context, it is also necessary to explicitly define the role of the company because it must define specific objectives during this instruction and define the entrusted mission to be carried out because of the significance that the mission must have in relation to the reference system, training, skills to acquire and their validation. In this new approach in which the companies often aim, above all, to increase their performance through the performances of all actors involved but also the knowledge of the company through these actors, by increasing the knowledge and the skills of the company. These agents, it seems useful to address the notion of the actor

network theory as the entire training device including actors and especially the role of e-booklet are important in this device.

3 Theory of the Network Actor

The idea is to show that the structure works in network: Apprentice-University-Enterprise and CFA but also all the tools that allow the appearance of this structure including the e-booklet. Indeed, Freeman [10] defines stakeholders as "any group or individual that affects or is affected by the achievement of the objectives of the business. As for Post, et *al.* [11] it is any individual or group that contribute, deliberately or not, to the creation of value for a structure, and who are its beneficiaries or who share its risks and Clarkson [12] considers an approach built on the contributions made by the actors and whose contribution can vary which is very interesting in our reading of the problem. From the perspective of the actor-network theory there is no separation-between the "human" of the "non-human" according to Callon [13]. It is even consolidated by law which defines a "meta-organization" with humans and "non-humans" who interact with each other, and consider all the elements that contribute to the final act as agents, including objects [14]. Indeed, the final act cannot take place without the contribution of each element. This approach is necessary to convince the organization that each actor has the same weight and especially that the e-booklet is also an actor of the organization. In fact, in order for the organization to become a learner organization, the fact that it is network facilitates learning since the interaction between actors is stimulated and new relationships can be established between all the actors without a hierarchical relationship. In the same way, the e-booklet will allow the conclusion of an essential concept specifically the sharing of knowledge between the actors.

4 The Role of the Apprentice and Learning Device in Learning Structures

In this very structured framework, it is useful to focus in particular on the object resulting from this device namely the apprentice. Indeed, the world of learning changes significantly and it even criticized by questioning its foundations and purposes [15]. With this in mind, the role of the CFA is more and more prominent in the approaches to learning whether from a theoretical point of view or from a point of view of practices. Indeed, learning practices have been largely impacted by these effects, as the lessons have been oriented in an approach that largely integrates operational experiences from more and more business world with case studies, or business game, or the recourse more and more often to professionals who intervene in the fields of practice. This element is interesting since the student's reception is also done through the Apprentice Training Center and it can have an influence on the student-apprentice's attitudes and actions, notwithstanding the fact that the apprentice is considered almost as an employee within the company contrary to the traditional student during his internship in the company where he will be considered trainee and ipso-facto of passage, while the first is placed in pre-employment situation and thus will act as a full-fledged employee,

and is already positioning itself in this perspective as soon as he arrives, the latter will act as performing compulsory work is part of his studies. We will consider in our work that the student will make a calculation of utility related to his investment and will be able to judge that his investment will not be profitable since the company will not keep it at the end of his internship, of a point of view of the game theory this calculation, while it will be optimal for the apprentice, since he considers that the company will wish to keep it in this context and that learning is presented as being the royal road of the 'occupational integration. The e-booklet that will be presented later will have the effect of reinforcing this belief and by improving the professional integration of apprentices.

In this axis of reflection, we could consider that both these students as well as those coming from the initial formation are in a well-defined approach by Biggs [16] which shows that a student resorting to the approach «on the surface "was mainly concerned with avoiding failure at the price of a minimum commitment that would be the student in initial training and therefore performing a course unlike a student resorting to the approach" in depth», which is mainly motivated by the search for meaning and ownership and who would then be the apprentice. In the first context, the student is placed in the paradigm of teaching while the second state places it still in the paradigm of learning. The world of education has an often classical vision with definite sequences in the curriculum while in the world of learning, the evolution of students in a given field of knowledge requires new approaches to learning [17]. This reflection is reinforced by the work of Messick, who shows that there are constant individual differences in the way of organizing and processing information and experiences [18].

The role of this e-booklet will then push the apprentice to better optimize his apprenticeship in the company but also within the university to acquire the maximum amount of knowledge and skills because this tool will be the major element for measuring the graduate's actual integration skills in the world of work. It will also avoid useless arbitrations of the learner with respect to the acquisition of knowledge that will not be observed in the field, since without this knowledge, the competence cannot be validated. As an example, let us imagine the necessary skills for web site design, we can build around these skills, explicit and/or implicit knowledge acquisition needed (Table 1).

Table 1. Representation of Skills from e-booklet

Skills	Knowledge Level 1	**Knowledge Level 2**	**Knowledge Level 3**
Website design	Html	Html	Html
	CSS	CSS	CSS
	Web design	Web design	Web design
		Script language JS	Script language JS
			Php, Asp..

We will try from this perspective to consider an approach based on the notion of the need to perform an action such as making a pastry and to acquire the operational techniques such as knowledge, methods and procedures to achieve and master core practical competencies and therefore learning. We want to show in this work that the role of the apprentice is, contrary to current trends, a major element of the process of the validation of skills and we will see that the approach based on game theory will validate this hypothesis through the use of Shapley's value and show that the Shapley value of the apprentice is the greatest versus the value of the academic tutor and the company tutor.

5 Evaluation of the Apprenticeship and the Role of Booklet

The status of apprenticeship involves the enterprise both in the process of training and assessment of acquired skills. In this perspective, a pedagogical committee, which includes the companies, the university and the CFA, participates in the evaluation of the contents and encourages a better professionalization to favor the professional insertion. In addition, juries evaluating the work done and skills acquired throughout the year and no longer just at the end of the course, are of mixed composition. They include academics but also professionals including the tutor of the company. In order to make this work more efficient, an annual follow-up is done initially through a booklet that includes a theoretically active participation of the training manager, the university tutor, the apprentice and the guardian of the company. This tool is now available in digital format as e-booklet. We found that this document, whether written or digital, was not very encouraging and sometimes criticized. It was found that it was more mandatory than incentive. Few elements were present that could make it efficient from a qualitative point of view.

In this perspective of improvement, we considered two axes, first to encourage the students to give their feedback on all the courses that were followed and then to analyze the textual content and see what are the knowledge and skills that would not be acquired and by doing so, we can propose corrective actions through the provision of online courses either in the form of courses or Mooc. The apprentice himself then becomes an actor of his own learning in a constructivist approach [19] including in topics that would not be included in the pedagogical model, as better acquisitions in language related to the business needs. The latter will also be strongly associated with this approach, since it can postpone the missing skills that will be corrected either by current actions or by online training.

We then come to the essential role of the e-booklet to know the common good of all the actors that is a favorable insertion of the young person in the world of the company. Still in a perspective of improving the existing tool for a better use, we work on a modeling/anticipation of the behaviors of all the actors, starting with those of the apprentices and that the imperative need of cooperation between all the agents to know apprentice, trainer and company under the leadership of the CFA and therefore formally establish the value of Shapley [20] in order to establish that sharing this goal can lead to the common goal and that the CFA can fulfill its role of allocation of means for achieving this objective, and that the tools put in place are effective devices. The goal is

to achieve a cooperative or coalition game in which players can form coalitions and act in concert and with transferable utilities where it is possible to add players' utilities and redistribute them to members of a team or a coalition. A Coalition is defined as a group of agents who decide to cooperate in order to achieve a common goal, which is the goal of the evaluation tool namely the e-booklet. To this end is associated a utility or shared reward between the different agents forming the coalition [21].

To illustrate the document, we will place ourselves in the frame in our situation with individuals having to share the benefit v(E) gained by this structure. We suppose that we know for each subset F of E, the benefit v(F) that the individuals present in F would have (a substructure can be the CFA and the university, …). This purely individual value without the integration of the other actors would be the intrinsic value and does not take into account the contribution of each of the actors of the coalition since the agent acts alone. We seek to determine the remuneration or contribution that each actor i must receive and this is the value φ(i) of each player [22]. The simplest way would be that the sharing is done in an equal manner namely the total value divided by 4 in our case. It is also true that our situation the overall gain would be the success and insertion of the apprentice, which is the objective of the CFA to know

$$\varphi(i) = v(E)/4\,.$$

In the presence of coalition, the overall value would be greater than the sum of the values of the actors. In fact, without a coalition or CFA action, which will have a coordinating role here, the overall value would be the intrinsic contribution of each of the actors. In this case all players contribute in the same way, which is obviously the conventional reasoning that all agents have the same contribution, but in fact the benefit would be higher for the apprentice and by the same his contribution should be stronger and this is the meaning of our thinking, since we will show that it will start filling the e-book under the aegis of the CFA, which as we have explained above, will have a structural evolution to do to the learning organization and in our approach to the network actor theory, the additional value of the coalition could be that of the e-booklet, except that this additional value will be shared by the other actors without forgetting the marginal contributions of the others actors.

It is useful to remember that the university sees itself playing a new role which is the accompaniment of students towards a better professional integration, with the setting up of an observatory or various indicators which influence the durability of the formations. This result, which is necessarily immaterial, is the result of the action of several actors who are the CFA, the training structure, the company and of course the apprentice, who will become the bearer of this project and the result obtained should be the most useful for him, because it will allow him to master the skills that he will need and that would have been validated by the company, and therefore by the best institution that knows best the needs for integration. Finally, the CFA will use this result to improve its knowledge and put in place tools to further improve the knowledge of all employees including the apprentice. If the apprentice's contribution to the filling of the e-booklet is the most important, his value of Shapley would be greater. To better understand this mechanism and how the apprentice will have an important role in

triggering the filling of the e-booklet, we will detail the filling algorithm based on the Gale-Shapley model.

If an actor does not fill the e-booklet, it is considered transparent and has no influence on the total value, it will not validate a skill for example and therefore its value will be zero. In our system, of course it is necessary to immediately correct this situation and it is in this that the apprentice or even the CFA will have to correct this bias if it happens and must ask the actor in question to act. As much as the university will be evaluated on its ability to train collaborators and insert them professionally as the tutor of the company will have different indicators that can go towards the establishment of valuation of social and human capacities. Once integrated into the group, it can contribute to value creation such as training the apprentice and validating his skills and that will be his marginal value.

In fact the intrinsic value of the actor is not really because it depends on the intrinsic value of other players and the reality of interactions between players. In this context, pedagogical committees have a great deal of influence on expectations and needs, and there is even a training of tutors to further improve the interaction between the actors and thus increase the intrinsic values of all the actors. Without the properly completed e-booklet, each actor has only its intrinsic value and its marginal contribution would be zero and the role of the CFA, whose intrinsic value is zero without the existence of the other actors, will have a value related to the creation of the marginal value by encouraging the other actors to produce more and here in this case the filling of the e-booklet. We can of course consider the distribution of value that will benefit the apprentice more since the filling of the e-booklet will allow him to know his evaluation and therefore allow him under the aegis of the CFA to organize a training with the tools described above and/or remediation both at the level of the training organization and the company to allow it to meet 100% of the requirements of the standard and thus lead to successful insertion. We can focus on the distribution of this profit between the apprentice, the CFA, the company and the university, since each of the actors of the coalition will recover a part of the investment related to the increase of the global result. Within the university, the insertion rate of young people is a major indicator in the choice of training and this can be a form of reward.

We have seen above that the filling of the booklet becomes a real concern because it is rarely satisfactorily fulfilled and therefore it cannot serve as a tool for assessing skills and knowledge. It is certain that the obtaining of a diploma makes it possible to state that the student has been able to give satisfaction and as he has the knowledge and the competences and which are the subject of a follow-up on the part of the CFA. However, the role of the CFA remains minor if the e-booklet is not properly filled and its added value remains low or even zero, what we have called the marginal contribution. It will serve only as a place to finance training. We would like to point out that adult continuing education does not need this follow-up, adults are supposed to come from the business world and easily perceive the skills they need to acquire, they are also demanding of all the knowledge that will enable them to acquire these skills. In a lifelong learning approach, which is the leitmotif of modern and innovative societies, this document can be crucial for developing training strategies in the learner's future.

6 Situation of Actors of Learning and Game Theory

Game theory allows analyzing different situations in which agents or players interact in order to study the behavior of the various actors who participate in these interactions through a formalization of their process of cooperation, coalition or rivalry. The games can be cooperative or non-cooperative, zero sum, and in this case the gain of one is the loss of the other player or other players or non-zero sum in which the consultation between agents is desired. This cooperation can lead to a situation in which players can enter into agreements to maximize their joint profit. The notion of equilibrium is the fundamental notion in game theory. It is necessary to study and compare various strategies for which the strategy of each player is the best answer to the strategies of the other players. In fact each player has a set of actions, and the result of the game depends on the actions chosen by all players. A set of actions forms Nash equilibrium if the action of each player is the best for that player, given the actions of the other players [23]. We cannot talk about Nash equilibrium without mentioning the Pareto Optimum. One point is said Pareto optimal if it cannot be strictly dominated by another, that is to say we consider the situation where we cannot improve the utility of an agent without damaging that of at least one other and has the advantage of being acceptable to all. We see here that the interaction between actors or agents is essential and that the CFA will have a fundamental coordinating role, in order to show that the search for this common good which is the best insertion of the apprentice is the fundamental element of the creation of this coalition.

For Shapley, the marginal contribution of each player k is equal to the mathematical expectation of his marginal contributions to the gain of all the coalitions that can be formed without him. The CFA will thus be able to show the value of this marginal contribution by comparing the situations where the e-booklet is well and correctly filled and the actions taken and an e-booklet that is not completed or filled in and the result on the insertion of the apprentice [24]. To start the idea of the filling phases, we will explain the method of matching the actors in Gale and Shapley's [25] marriage model, which consists first of all in defining a finite set of women w and a finite set men m, which define the two types of individuals that we want to associate in pairs. Each individual v is characterized by a strict, transitive and complete preference relation, Pv defined on the individuals of the opposite sex and himself. Thus (m_3Pw, m_2Pw_2, w, Pwm_1) indicates that w prefers to be married to m_3 rather than m_2, and to be married to m_2 rather than remain single, and remain single rather than being married to m_1. The algorithm of Gale and Shapley privileges from the start a type of individuals, that makes proposals of marriage to the other and thus here the apprentice who will start the choice of sending the e-booklet according to the skill or knowledge that he wishes to validate. Without going into the details of this algorithm, we see clearly that the system favors the voluntary approach in obtaining the result and de facto a form of incentive to the reaction and therefore the emergence of the least of a communication process which must be a reflection to be conducted at the level of the CFA which often are in an informational approach. The dimension of communication within the organization is essential in building a learning organization.

7 Algorithm for Creating an Evaluation Tool

The agent, who starts the validation starts with all the possible sets, classifies them and sends the ones he deems acceptable to the next (Table 1). We could have in our reflection on the value of Shapley reflected on the establishment of sub-coalition that would be made up of several possibilities either the apprentice and the university tutor, or the apprentice and the company tutor. We see that here we will be able to define the process of filling the e-booklet. It is a strategy among others and this one will be more based on the construction of a coalition linked to the presence of the apprentice who is an evanescent actor of this organization unlike the university, the CFA even of the company who have more interest in being in a cooperative approach. This approach can be validated in a formal and engaging way in order to encourage the actors to be explicit and complete in their evaluations [26]. This is a process that is interesting because it will be validated at each stage. Indeed, an agent sends a set of suggestions; he signs it to indicate to the following that he has accepted. This validation will be a form of validation of skills and the role of the CFA can be a regulator of this validation, especially from the company so that it is possible. There are, of course, safeguards within the company and the CFA is supposed to check the level of the company tutor in terms of position and degree, which ultimately allows validating these skills and notwithstanding validation by the university. When an agent receives a group of sets, he sorts them into new groups and adds them to those he validated himself. If he has a group of sets that he prefers to those he has received and has not yet transmitted, he can send it to another agent, here it can be either the company or the university that will rank the skills that the learner thinks he has acquired and which will be an essential step, since this will allow to formally indicate the unfulfilled skills and the missing knowledge for this acquisition (Tables 2 and 3). At any time, an agent who has received signed sets may declare them acceptable as a solution, sign them himself and pass them on to another agent who has not signed them yet. When an agent receives a group of sets showing the skills and/or knowledge that all other agents have signed, if at least one of them is deemed acceptable, the one he deems the best is a Pareto optimum. This culmination at an optimum of Pareto, shows that in this coalition game all the actors are satisfied and none is damaged by the approach of the other actor. This last step can be devolved to the university, which by its role of diploma structure will allow beyond the diploma itself to ensure the certification of competence (Table 4).

The learner can restart the process whenever he considers that the missing knowledge or skill has been acquired. The role of other actors becomes a role of referee and not of power. The trend in the transfer of utility is also the transfer of power to all actors. If the learner realizes a website and considers that he has acquired this competence by using different languages which constitute the base of competences. The host company can validate this competence because it has responded to the specifications in terms of what has been described above in terms of compatibility with the reference system. The university can re-evaluate its arbitration towards a validation of the competence and the knowledge. It is necessary as we indicated in advance to know the establishment of a process of coordination and not of setting up the process and the CFA can fully play this role of coordinator, leaving the implementation of the process

Table 2. Step **1:** Learner filling the skills in the e-booklet

Skills	Knowledge Level 1	**Knowledge Level 2**	**Knowledge Level 3**
Website design	Html	Html	Html
	CSS	CSS	CSS
	Web design	Web design	Web design
		Script language JS	Script language JS
			Php, Asp..

Table 3. Step **2:** Company filling the skills in the e-booklet

Skills	Knowledge Level 1	**Knowledge Level 2**	**Knowledge Level 3**
Website design	Html	Html	Html
	CSS	CSS	CSS
	Web design	Web design	Web design
		Script language JS	Script language JS
			Php, Asp..

Table 4. Step **3:** Learner filling the skills in the e-booklet

Skills	Knowledge Level 1	**Knowledge Level 2**	**Knowledge Level 3**
Website design	Html	Html	Html
	CSS	CSS	CSS
	Web design	Web design	Web design
		Script language JS	Script language JS
			Php, Asp..

Acquired, Nearly acquired, Not acquired

in the hands of the apprentice in terms of start-up and validation timing, including in the reading of temporalities such as the visit of the apprentice in a company that could serve as point for the validation of skills by discussing the points of disagreement that will eventually fade away based on Aumann's theorem, that there is a satisfactory solution, [27] that in the presence of beliefs a priori common and the same information, the beliefs a posteriori are identical. This then induces the impossibility of agreeing on

a disagreement, and the achievement of equilibrium. A new learning process can then be put in place to correct it. The CFA in its role of coordinator must ensure the respect of the contract indeed, the works of Harsanyi define the rules of a cooperative game, in this type of game, the commitments contracted by the agents are irrevocable and are guaranteed by an institution able to enforce them [28].

It is clearly established that the CFA will have a fundamental role to play here which is to ensure the right balance and above all to act by getting involved in the action of the cooperation between all the actors so that this balance is reached. Finally, we can also conclude since the apprentice will be the main loser of the game, to make sure that this equilibrium remains untouchable to remain of optimal use. Under this hypothesis, we look at the e-booklet to design an application that measures the equilibrium of all apprentices during the year by a systematic evaluation of the training sequences and to detect the flaws that can disrupt this training balance. In the light of this, corrective actions will be put forward to reduce this distance from a theoretical equilibrium.

8 Conclusion

The idea behind this work is to give the apprentice a greater role in evaluating learning situations and to design a tool that would be more effective. It would thus be possible to push more actors under the guidance of the apprentice to complete it and of course under the supervision of the CFA. The latter would play the role of regulator to achieve the common wealth of know how to promote professional insertion. We highlight here the role of the human factor in the learning process and how purely technical approaches such as the e-booklet completely disconnected from humane and enriching interactions, measurable thanks to the valorisation of the group, are doomed to failure. The evaluation of the group leads to the estimation of each actor through the distribution of this created value using Shapley value and thus show each agent the value created and especially that corrective actions can be implemented.

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