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The educational scenario architecture of a learning situation

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Abstract

This work seek to approach the question of teacher activity in the classroom by seeking to describe it in close connection with the specific context in which it takes place, based on constructivist and socio-constructivist approaches. We thus propose to conceptualize architecture of a pedagogical scenario for a situation of learning content specific to a discipline of this activity of teachers in the classroom. This architecture, which consists of four blocks, is based on learning activities. Before proposing this architecture, we think that it is necessary to first define the key concepts of our work. Note the educational scenario, the learning situation and the learning activity.

Keywords: Conceptualization; Educational scenario; Learning situation; Learning activity.

1. Introduction

For several decades, researchers in the educational sciences have been interested in what teachers do in the classroom. One of the main research objectives has long been to identify teacher's behaviours in the classroom that can encourage learning among learners. In recent years, a concern has developed that moves away from the "content" of teachers' work in the classroom to focus on its "form" and its nature [1]. Indeed, the teacher's activity is considered to be the result of a compromise between multiple rationalities: the didactic and pedagogical objectives of the teachers, their own subjective goals, as well as the constraints and resources of their work environment. Dubet [2] considers that the teacher's activity depends essentially on three elements: his work situation, the learners and himself.

Based on research that deals with the activity of the teacher in the classroom, Goigoux considers that this activity is multifinalized, that is to say that it is directed simultaneously in three directions [3, 4, 5, 6, 7]:

- Towards learners, considered individually for whom, the teacher aims to facilitate their learning, in different cognitive and social registers: instruct and educate. Collectively for which, the teacher aims to bring the class to life as a social group which maintains relationships with it, the rules of which are neither fully given in advance nor definitively established. He strives to master the intellectual and relational trajectory of the class considered as an entity of which it is necessary to remain master without losing sight of the singular learners.
- Towards other actors in the school scene: the teacher devotes part of their resources to making their professional action readable and acceptable and valuable. He must also be able to integrate his activity with that of others: the parents of his learners, his hierarchy, the teachers who received the learners in previous years and those who will receive them afterwards, the other teachers who act simultaneously (in d other disciplines, in support actions, in homework help, etc.), the various co-education partners.
- To the teacher himself: the teaching activity produces effects on the one who performs it both on the physical and psychic level, that of self-fulfilment. A part of the teacher's choices therefore depends on the costs and benefits that he can personally derive from his activity according to his own goals that he can decline in terms of educational objectives, values, professional pride, self-esteem, comfort, health, integration into the workplace, social recognition, career development, etc.

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Goigoux [8] considers the activity of a teacher as the response he implements to carry out the task he gives himself. According to the author, this depends on his own characteristics (purposes and objectives, knowledge and skills, conceptions, values and beliefs, experience and training, etc.), of those of his learners (their knowledge and relationships that they maintain with knowledge and the School, their skills, their individual and collective behaviours, etc.) and those of the educational institution (institutional framework, work organization, prescription, socio-political context, etc.).

Thus, for several authors, the classroom teaching activity is an activity not structured by an ultimate goal, like educational purposes, but an immediate regulatory activity, structured by locally defined objectives and which fulfils two functions: management of order in the classroom and management of content-matter [9, 10, 11].

Regarding the management of order in the classroom, the teachers orient their activity so as to ensure an organized functioning of the classroom. Indeed, classroom management activities aim to establish and maintain an orderly environment necessary for the effective deployment of subject teaching and learning activities. The teaching activity then consists in organizing groups of learners, controlling their movements, structuring the proposed material, regulating speaking, enacting and recalling the rules of life in the classroom, reacting to learners' behaviour with criticism, sanctions or praise, etc.

Concerning the management of content-subject, the teaching activity oriented towards the management of the subject, or towards the teaching of the content itself refers to the operations that the teacher implements to make learners learn and concerns the organization of content of learning situations, how to structure and present the learning situation, proposed school tasks, questions and instructions asked, procedures for evaluating learning, etc.

2. Theoretical framework

Through this theoretical framework, we will be interested in three essential concepts which constitute our framework: the pedagogical scenario, the learning situation and the learning activity. Based on research, we propose definitions of these three concepts and at the same time, we propose our approach.

2.1. The educational scenario

The term "educational scenario" is the subject of many definitions. A pedagogical scenario presents a learning activity initiated by a teacher in order to supervise the learning of his learners. An educational scenario presents an approach aimed at achieving educational objectives and the acquisition of general or specific skills related to one or more disciplines. He presents a learning activity, initiated by a teacher in order to supervise the learning of his learners (before, during and after the activity with self-assessment and evaluation sheet, scenario, didactic resources, etc. . .).

Among the many definitions, here are some quotes taken from the bibliography in chronological order, focusing mainly on the field of training engineering, the field of educational engineering and the field of Human Learning Computing Environment (EIAH):

Regarding the field of training engineering, the scenario is an instrument for explaining and communicating a training project. We propose two definitions, that of Daele and that of Schneider:

According to Daele and his collaborators [12] in 2002, "the educational scenario is the part of a training device which describes the course of teaching and learning activities. The system provides the scenario with logistical means and resources (technical, human, administrative, etc.) to be implemented. [...]. The training system itself fits into a given institutional context linked to the needs expressed by society. " Still according to Daele "the educational scenario is seen as the result of the process of designing a learning activity, a process taking place over a given period of time and leading to the implementation of the scenario. In a scenario, we therefore find objectives, a planning of learning activities, a timetable, a description of the students' tasks, evaluation methods which are defined, arranged and organized during a design process".

According to Schneider and his collaborators [13] in 2003, "a scenario is defined by an orchestrated sequence of phases [...] in which the learners have tasks to perform and specific roles to play".

Concerning the field of educational engineering, we propose two definitions proposed by Paquette and his collaborators:

According to Paquette and his collaborators [14], a first definition was proposed in 1997, "the educational scenario consists of two other scenarios (learning scenario and assistance scenario) and consists of describing the activity or activities specific to learning and assistance, the resources required to carry out the activities and outputs that should result there from. [...] A learning scenario is the set of activities intended for learners and organized into a coherent whole; these activities are supplemented by the instruments offered as support for the activities (instruments-inputs) and the instruments to be produced by the learners (products).

A second definition is proposed by Paquette and his collaborators [15] in 2003, "By the design of educational scenarios, the designer establishes the links between the sources of information and the various actors. [...] The designer foresees the types of communication, the educational strategies, and the modes of collaboration between the actors".

Regarding the field of Human Learning Computing Environment (EIAH), we propose three definitions proposed by Lando, Pernin and Guéraud:

According to Lando [16], "a pedagogical scenario is the course of a learning activity, the definition of objectives, the planning of tasks, the description of learners' tasks and evaluation methods".

According to Pernin and Lejeune [17], "a scenario is defined as a description made a priori and a posterior, of the unfolding of a learning situation aiming at the appropriation of a precise set of knowledge, by specifying roles, activities as well as knowledge manipulation resources, tools, services and results associated with the implementation of activities".

According to Guéraud [18], "the scenario has a triple role: it precisely defines the activity offered to learners on the OPI (Interactive Educational Object); it also specifies the control which will be made of the learner's progress during this activity; he finally determines the educational assistance which will be provided automatically according to his progress. Our concept of scenario is (a priori) distinct from the concept of "educational chain scenario" often present in Open and Distance Learning platforms. A sequence scenario makes it possible to specify how the various educational activities will be linked while our scenario relates to an activity (exploiting an OPI) and makes it possible to follow the progress of a learner towards the objective set by it. ".

By analyzing all the definitions according to the different fields, we note that the educational scenario gives rise to a project, a particular learning activity, the realization of which calls upon resources (sites, software ...) and documents (print, audiovisual, multimedia, etc.). It presents an approach aimed at achieving educational objectives and the acquisition of specific and / or transversal skills related to one or more disciplines according to the terms and specifications of the study program. We can summarize all of these definitions by Bardot [19] proposal in 2014, which defines an educational scenario as the description of the organization and development of a learning situation using digital technologies and aimed at the appropriation of a specific body of knowledge. A scenario specifies in particular the targeted knowledge, the roles of the actors and their activities as well as the knowledge manipulation resources, tools and services necessary for the implementation of these activities. Therefore, based on this definition, our objective in this work is to propose an educational scenario of a learning situation by taking into consideration all of the elements already mentioned above. In fact, our conception of an educational scenario has four parts (blocks).

- A first block called technical sheet, it offers us a set of information related to the situation treated;
- A second block called objectives and skills; it provides information on the objectives to be achieved at the end of the situation and on the knowledge to be acquired and the skills to be mastered by the learners at the end of the learning situation;
- A third block called structuring; this block concerns the structuring of specific knowledge by proposing learning activities which relate to the situation, structuring and objectification
- A fourth block, called transfer and reinvestment, it concerns the transfer and reinvestment of the knowledge and skills dealt with in the situation, in a context other than that dealt with in the second block of the situation.

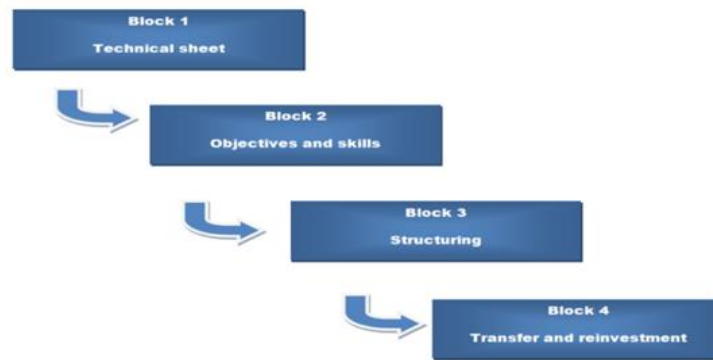The diagram in the following figure 1 illustrates the structure of all the blocks.

Figure 1 Structure of a pedagogical scenario of a learning situation

2.2. Learning activity

A learning activity is a situation planned by the teacher and proposed to the learner to help him reach a learning objective. The learning activity usually involves one or more tasks to be accomplished. There is always an intention behind the decision to have a group of learners carry out an activity. This intention can be motivated by several elements including the strategy, the level of the skill to be developed, the time of the session, etc. Indeed, the school environment in general is organized in such a way that it forces teachers to function generally in the same way by imposing on their activity a common global structure [1]. Thus, a learning situation is a device which projects a subject so that it accomplishes a task. By playing the instructions on constraints and resources, the subject operates mentally and builds new knowledge. Indeed, a learning situation, chosen after having determined the objectives, specifies the teaching method and the supports used which must be varied [20].

Similarly, it is however possible to highlight the main effective characteristics of the teaching activity. The latter would be [21]:

- A relational activity involving the cooperation (or transaction, mutual understanding) of at least two people, a teacher and one (or more) learners;
- A communication activity involving an exchange (unidirectional or bidirectional) of information between a teacher and one or more learners;
- An activity cantered on the learning objective of the learners, or even the mastery of a content, the acquisition of skills or information;
- An activity relating to a given content, this content being able to be knowledge, beliefs, information, behaviours and moreover having particular characteristics such as generalizability;
- An activity in which the teacher would have a specific behaviour (presentation, clarification, evocation, indication, etc.);
- An activity in which the mental states (intentions, beliefs) of the protagonists can play an important role, and be mutually inferred.

To respect the learning process of the learner, the teacher will have to offer him learning activities. There are rules in building learning activities. They arise from the way the human brain goes about learning. Indeed, we must establish a hierarchy of activities to offer to learners according to what we want to learn. We offer eight types of activities, defining the characteristics of each type.

- Impulse: Mobilize and subscribe the learner to the training;
- Exploration: Explore previous knowledge and discover the difference in the competence of the training;
- Learning: Foster the construction of meaning around specific knowledge;
- Application: Promote the use of knowledge and its integration in the development of skills or technical capacities;
- Summary: Promote the coherent assembly, at the end of a session, of all the objectives achieved;
- Transfer: Foster the building of links and the adaptation of learning in real situations;
- Remediation: Helping the learner to overcome certain learning difficulties;
- Enrichment: Propose more complex challenges to faster learners.

In summary, based on what is said above, we propose to structure the eight types of activities into four activities: situational activity, structuring activity, objectification activity and transfer activity [22], and the four types of activities that we will use through our design of a teaching scenario for a learning situation. Indeed, the first step concerns the situation through engagement and initiation. The second step concerns the learning activity through a conceptualization, an experiment, an exercise, a problem or a project. The third step concerns objectification through reflection, where awareness and appreciation of what has been learned with the previous step takes place. The fourth step concerns reinvestment through the transfer of skills, and the demonstration of competence.

The following figure 2 illustrates the four types of learning activities depending on the context of a learning situation.
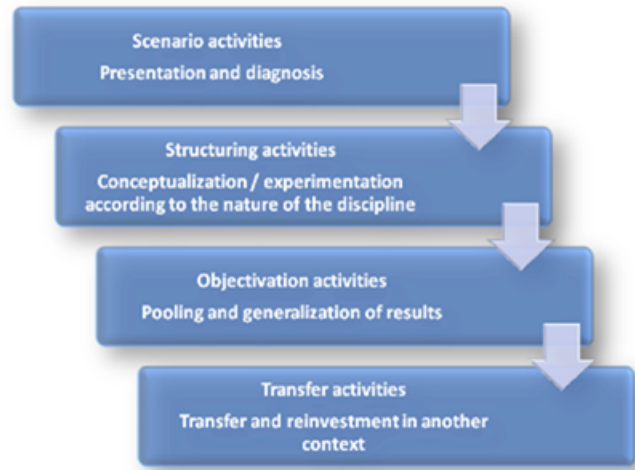

Figure 2 Types of learning activities according to the context of a learning situation

2.3. Learning situation

The learning situation is defined as a set consisting of one or more activities to be carried out by the learner in the form of tasks in order to achieve the set objective. It allows the learner, on the one hand, to develop and exercise one or more disciplinary and transversal skills and, on the other hand, allows the teacher, to monitor the development of skills from a support perspective. To learning. It is therefore centred on the learner and advocates a constructivist or socio-constructivist approach to school [23].

During the realization of a learning situation and the activities it involves, the learner will have to solve problems and perform tasks and instructions to acquire knowledge and master skills. Note that a skill is a know-how based on the mobilization and use of a set of resources, including knowledge in the form of declarative, procedural or conditional knowledge, know-how in the form of process skills and approaches, and finally know-how in the form of behaviours, attitudes.

The learning situation will be significant if it meets the orientations of the training program, touches the centres of interest of the learners and poses challenges within their reach while making it possible to highlight the usefulness of the knowledge. It will include suggestions for working methods and evaluation instruments which must also relate to the general areas of training common to the different disciplines and deal with disciplinary content. In a strategic approach, the learning situation is organized in three stages:

- Preparation for learning: the teacher transmits the necessary information to the learner so that he is ready for the task (declarative knowledge: WHAT?) And for what this task can be used for (conditional knowledge: WHY?).
- Completion of the task: the teacher models the task and guides the learner in how to do the task and process the information received (procedural knowledge: HOW?).
- Transfer of learning to other situations: the teacher provides other learning situations where the learner reinvests what he or she has learned (conditional knowledge: WHEN?). Indeed, knowledge transfer is defined as the relearning of what the learner already knows in a new situation. This is what he is able to do with his knowledge at a given time. The transfer of learning can take place at three levels:
- Transfer of knowledge in similar training situations;
- Transfer of knowledge in complex social and professional situations calling upon other knowledge, other values or other habits;

- A transfer of the knowledge acquired in his personal history by giving it a meaning and by organizing it.

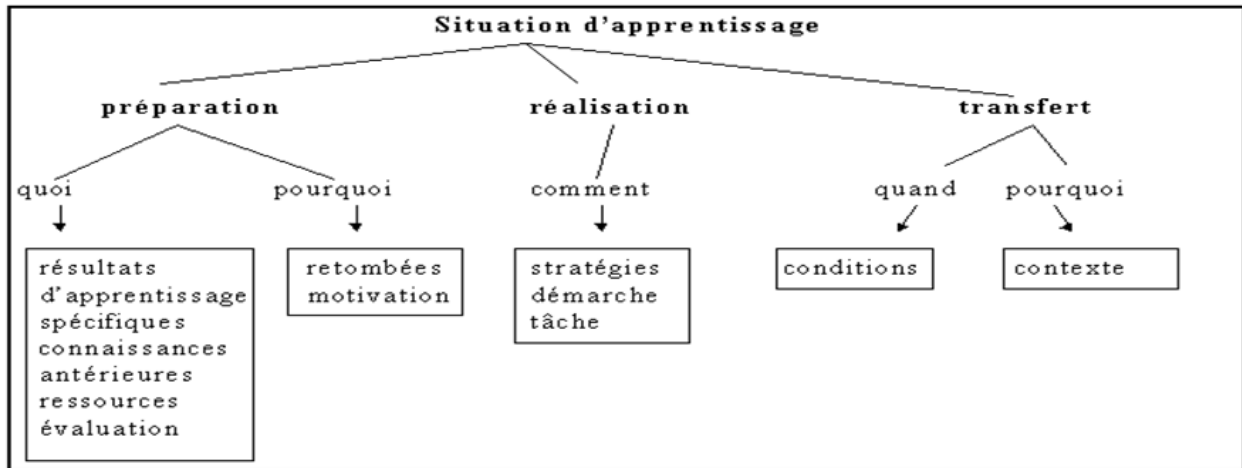The following figure 3 provides a diagram of the learning situation [24]

Figure 3 Diagram of the learning situation

Through this work, we propose the development of a learning situation in the form of an educational scenario in four blocks:

- The first block concerns the general information of the situation in relation to the discipline, the field of discipline, the level of training, the place of the situation in a program, the level of the learners and the class,…;
- The second block concerns the definition of objectives (general, specific, intermediate) by considering that each intermediate objective corresponds at least to a learning activity, skills (disciplinary, transversal) by considering that the choice of activities depends on the knowledge to acquire skills to master and the prerequisites (prior knowledge) which allow the decision of a remediation in the case where there are learning difficulties through a diagnostic evaluation at the beginning of the learning situation.
- The third block concerns the structuring of specific knowledge by proposing learning activities which concern:
- Scenario activities for the presentation of a learning situation and at the same time the diagnosis of prior knowledge;
- Structuring / experimentation activities (deductive approach, inductive approach) depending on the nature of the discipline for the construction of meaning around specific knowledge and at the same time the use of knowledge and its integration in the development of skills;
- Objectivation activities for pooling and generalizing the results obtained during structuring / experimentation activities.

At the end of this block, based on the work cited above concerning a learning situation, we propose architecture of a learning activity without taking into consideration either the nature of the activity, or the nature of the discipline.

- The fourth block concerns the transfer and reinvestment of knowledge in a context other than that of initial learning and at the same time remediation to overcome certain learning difficulties.

3. Conceptualization of educational scenario architecture

Based on the proposals of our theoretical framework, concerning the definition of the educational scenario, according to Bardot [19], concerning the definition of the four types of learning activities while respecting the learning approach in learning activities. This approach which results in four distinct stages [22]. And finally, concerning the definition of a learning situation according to Mels [23], we propose in this work, the main lines of a pedagogical scenario of a learning situation that we divide into four blocks:

3.1. Block 1: Technical sheet of the learning situation

The first block concerns the technical sheet of the learning situation which groups all the general data concerning the learning situation, the following table provides us with a list of the data necessary for the smooth running of the learning

situation. Indeed, any learning situation has a title, this title tells us about the discipline taught and its disciplinary field. The place of the situation in the program, informs us about the prerequisites necessary to allow a learner to follow the learning situation and above all, it informs us about the level of training, that is to say the intellectual level of learners which allows us to choose the level of concepts to deal with in the situation. The level and nature of the class tell us about the choice of activities according to the level of the class (weak, medium, strong) and according to the nature of the class (homogeneous, heterogeneous). The number of learners, informs us in the case of group work of the number of teams to offer. The number of sessions tells us about the management of activities in relation to time.

Table 1 Technical sheet of a learning situation

Fiche Technique
Titre de la situation d'apprentissage :
Nature de la discipline :
Domaine de la discipline :
Place de la situation dans le programme :
Niveau de formation :
Niveau de la classe :
Nature de la classe :
Nombre de séances :
Nombre d'apprenants :

3.2. Block 2: Definition of the objectives and skills of the learning situation

The second block concerns the definition of objectives and skills which consists firstly, in developing the architecture of objectives by defining the general objective, the specific objectives associated with the general objective and the intermediate objectives associated with each specific objective. The diagram in the following figure 4 offers us architecture for the case of a general objective associated with two specific objectives and each specific objective is associated with three intermediate objectives.
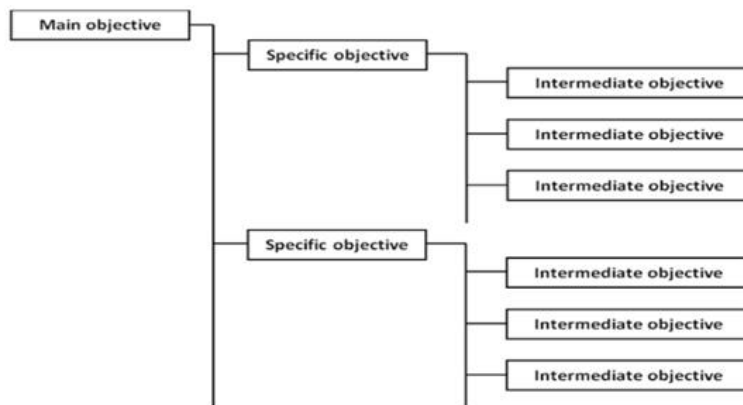

Figure 4 Example of general, specific and intermediate objectives architecture in a learning situation

In a second place, the definition of objectives and skills consists of defining the disciplinary skills based on the knowledge to be acquired and the skills to master and the transversal skills based on their components. The diagram in the following figure 5 offers architecture of skills.
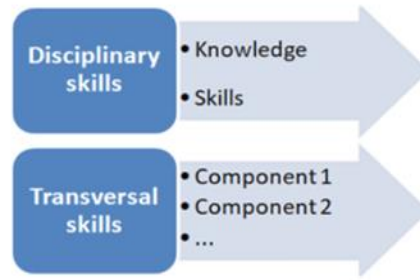
Figure 5 Example of architecture of disciplinary and transversal skills in a learning situation

Thirdly, the definition of objectives and skills consists in defining the prerequisite objectives (prior knowledge) necessary to monitor the learning situation. Namely, these prerequisites constitute the basic element of the diagnostic evaluation proposed by the teacher at the beginning of the learning situation.

3.3. Block 3: Learning activities: Structuring specific knowledge

The third block concerns the proposal of learning activities around the role-playing, structuring and objectification of specific knowledge. Indeed, to respect the learning process of the learner, the teacher will have to offer him learning activities that obey rules in their construction. They arise from the way the human brain goes about learning. Thus, we must establish a hierarchy of activities to offer to learners according to what we want to learn [25]. In this block of our educational scenario, we propose it in the form of three phases and each phase constitutes a type of the three activities, defining the characteristics of each type.

3.3.1. Discovery phase

The discovery phase concerns the activity of the scenario. Indeed, the scenario is an educational tool used in active teaching. The scenario can be used as an introduction to a learning situation, in order to support the motivation of the learners for the subject presented or as a practical exercise after having taught, to make the concept to be acquired more concrete. In all these cases, the purpose of the scenario is to improve the skills of the learner. Similarly, the scenario can be used as an assessment tool. The scenario is a way to assess the knowledge and especially the skills of a person in a different way from that of an exam, whether oral or written. The scenario allows you to see concretely how the person manages a specific problem.

In our case, we use the scenario as an introduction to a learning situation and at the same time as an assessment tool to test the learners' prerequisites. For this, we use diagnostic evaluation as a type of evaluation which allows situating the state of knowledge of the learner at the beginning of the learning situation. It makes it possible to locate the learner in the disciplinary field to make a statement of his knowledge and / or of his conceptions (initial representations), or of his mastery of current and scientific language and to adjust thereafter by proposing a course and resources adapted to the level of the learner. The following table presents objectives and means for this type of activity.

Table 2 Example of Objectives and means of the discovery and situational phase

Objectives	Medium
Mobilize energy;	Provoke (pique curiosity, arouse interest, launch a challenge);
Create favorable emotional conditions;	Secure (give confidence, encourage, remember successes);
Create favorable cognitive conditions.	Recall the prerequisites (previous knowledge and strategies that will be relevant to the activity).

3.3.2. Learning phase

The second phase of this block concerns the structuring activity. It allows the passage of action to formulation from the obstacles encountered during the discovery phase, it promotes the construction of meaning around specific knowledge and at the same time, it promotes the use of knowledge and their integration in skills development, at the end of a learning situation. This phase is mandatory to lead to the reflection induced by the concept discussed. This phase

concerns two cases depending on the approach adopted. Indeed, depending on the context and the situation, proposing a learning activity requires us to choose between two approaches, the deductive approach and the inductive approach.

 Presentation of a concept in a learning situation

The deductive approach (or logical deduction) consists in going from the general to the particular, from principle to consequence. It is a scientific method which considers that the conclusion is implicit in the premises. We start from the statement of the concept or / and the rule to go to the verification by examples. The diagram in the following figure 6 illustrates the presentation of a concept in a learning situation based on the deductive approach.
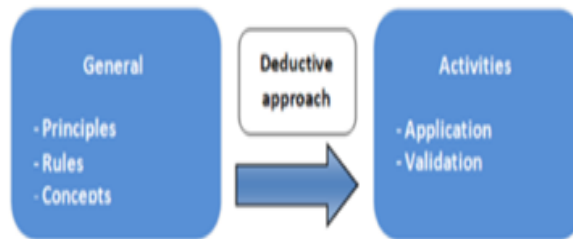

Figure 6 Presentation of a concept in a learning situation based on the deductive approach

Thus, to present a concept, it is necessary to use this approach which obeys the direct teaching strategy which is strongly guided by the teacher. It is an explicit teaching concept: a transmission of knowledge and the acquisition of skills and competences by the learner. The following table 3 presents objectives and means for highlighting this situation.

Table 3 Presentation of a concept in a learning situation based on the deductive approach

Objectives	Medium
Guide the course of the activity;	Clarify (give precise instructions define the terms, give an example of the expected product. Specify the presentation rules);
Gather the conditions necessary for the progress of the activity.	Check (equipment, layout, understanding of instructions, and mastery of prerequisites).

Experimentation / discovery of a concept in a learning situation

Regarding the inductive approach, it consists of going from the particular to the general. It is a scientific method that obtains general conclusions from individual premises. It allows us to move from observations, particular or specific analyzes, to more general perspectives. The educational exploitation of an industrial theme favors this approach: case study, problem posed analysis, new concepts, rules, generalization. Problem solving is completely consistent with the inductive approach. The diagram in the following figure7 illustrates the experimentation / discovery of a concept in a learning situation based on the inductive approach.
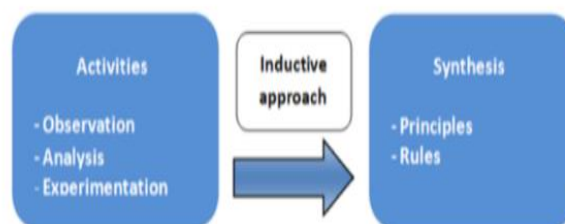

Figure 7 Experimentation / discovery of a concept in a learning situation based on the inductive approach

Thus, to allow the learner in a learning activity to experience and discover the meaning of a concept for himself, it is necessary to use the inductive approach which obeys the indirect teaching strategy which is learner-centred. Indeed, inquiry, induction, problem solving, decision making and discovery are terms that are used interchangeably to describe indirect education. Indirect education promotes creativity and the development of skills in the area of personal relationships. The following table presents objectives and means for highlighting this situation.

Table 4 Example of objectives and means of the experimentation / discovery phase of a concept in a learning situation

Objectives	Medium
Accomplish a task;	Supervise (organize the process, allocate or distribute tasks, help, solve organizational problems, control the time);
Provide concrete elements of experience to then analyze. ; Encourage the formulation of hypotheses;	Discover (ask questions, encourage testing, manipulation, the formulation of hypotheses);
Allow trial and error;	Help (provide clues, suggest leads, recall a procedure, provide materials);
Allow the development of strategies;	Inform (make a presentation, provide texts, present relevant material);
Integrate relevant knowledge.	Provide feedback (encourage success, invite improvement, provide means of self-correction, help identify and use errors).

3.3.3. Generalization phase

The third phase of this block concerns the objectivation activity which invites the learner to describe his approach and to name the processes involved (call for metacognition). It promotes the coherent assembly of all the objectives achieved through discussions to pool and generalize the results. The following table presents objectives and means for highlighting this situation.

Table 5 Example of objectives and means of the objectification phase of a concept in a learning situation

Objectives	Medium
Take stock;	Verbalize (ask questions, have a story told, describe the process, express feelings)
Evaluate the process;	Encourage exchanges (make people share, compare approaches and results, discuss and criticize);
Identify a model or laws;	Formalize (define or have defined terms, concepts, laws, procedures; generalize, make or have a diagram made, name the skills, strategies and methodological tools used);
Structure the knowledge acquired;	To discriminate (to react to counterexamples, to specify the limits of application, to present exceptions);
Formalize integrative concepts;	Get evaluated (self-evaluation, peer evaluation, formative evaluation by the teacher);
Identify the essentials.	Make a record (make or have made a summary, have a logbook completed, have the essentials noted).

3.3.4. Design of a learning activity

Through this part, we propose the design of a learning activity without taking into consideration the nature of the activity. Thus, for our design, we consider that a learning activity corresponds to a set of elements: we move forward, the specific objective and the intermediate objective corresponding to this activity, which are already defined in block two. Then, define the problem situation of this activity, Define the task and its instructions to respond to the problem

situation defines, to point out that the choice of the task necessarily depends on the nature of the discipline treated. Define the nature of the learners' groupings (individual or group work) according to the nature of the task to be performed. Define the didactic and technological material to be used in carrying out the task. Propose working documents for the learner and in parallel teacher specific response documents. Define the roles of the teacher and in parallel the actions of the learners throughout the activity and finally define the time allocated to the activity. The Diagram in the following figure 8 presents an architecture bringing together the different elements constituting the learning activity.

Title of learning activity:			
Specific objective:			
Intermediate objective:			
Problem situation:			
Task: Instructions:	Group: individual or group:	Teaching and technological material:	Management of time:
Teacher roles:	Activities of the learner (s):	Documents for learners:	Documents for the teacher:

Figure 8 Diagram of architecture of a learning activity

3.4. Block 4: Learning activities: Reinvestment of specific knowledge

This fourth block concerns learning activities around the transfer activity. This activity which allows the reinvestment of knowledge in a context other than that of initial learning through which the learner must reinforce, consolidate and fix his achievements by generalizing them (opening, widening). And at the same time it is a remediation step which helps the learner to overcome certain learning difficulties, by promoting on the one hand the building of links and the adaptation of learning in real situations and by proposing more complex challenges to faster learners on the other hand.

Table 6 Example of objectives and means of the activity of transferring a concept in a learning situation

Objectives	Medium
Deepen the tasks; Have different tasks accomplished;	Extend the field (have other examples found, suggest variants and refinements, introduce more complex cases);
Decontextualize learning; Promote the transfer of skills;	Practice (give training, do exercises);
Consolidate skills; Make autonomous.	Integrate (propose an extension in another program or another activity; propose an integrative project where the learning carried out must be used in conjunction with other learning).

4. Conclusion

As a conclusion to our work, we can conclude that conceptualizing a pedagogical scenario for a learning situation is not an easy thing. Indeed, the designer of the pedagogical scenario must first have a very good knowledge of the content dealing with the learning situation to be developed which will allow him to clearly define his objectives which he must

achieve at the end of his learning situation. Learning, to clearly define the knowledge to be acquired and the skills to be mastered by the learners. Secondly, he must have a good knowledge of teaching / learning models and strategies to decide on the different choices he must make the choice of his activities according to contexts and situations and at the same time according to specificity of the discipline he teaches. Thus, we have proposed in this work a conceptualization of architecture of an educational scenario made up of four blocks.

The first block concerns the proposal of a technical file containing a set of non-exhaustive information concerning the learning situation to be treated.

The second block concerns the definition of objectives relating to the specific content of the learning situation. This definition relates to general objectives, specific objectives and intermediate objectives; we have proposed an example of architecture of the different objectives. It also affects the disciplinary skills specific to the specific content of the situation by focusing on the knowledge to be acquired and the skills to be mastered by the learners at the end of the situation. It also affects the transversal skills to be used during the situation. Finally, it affects the definition of the prerequisites (prior knowledge) necessary for the acquisition of knowledge and the mastery of the skills of the learning situation.

The third block concerns learning activities that focus on the structuring of concepts and situational awareness. After having presented the concept of learning activity, we presented three types of activity in the form of phases.

- The discovery phase which concerns the scenario activity. In our case, we used the scenario as an introduction and presentation of a learning situation and at the same time as an assessment tool to test the learners' prerequisites.
- The second phase of this block is concerned with the structuring phase and which concerns the conceptualization / experimentation activity that we proposed in two forms depending on the nature of the discipline and especially depending on the choice of approach to follow. Thus, we proposed the phase of a presentation of a concept in a learning situation based on the deductive approach which obeys the direct teaching strategy and which is strongly guided by the teacher. Then, we proposed the phase of experimentation / discovery of a concept in a learning situation based on the inductive approach which obeys the indirect teaching strategy and which is centred on the learner.
- The third phase of this block is concerned with the generalization phase and which concerns the activity of objectification which promotes the coherent assembly of all of the objectives achieved through discussions to pool and generalization of results.

At the end of this block, without considering the nature and type of the learning activity, we proposed architecture of a learning activity. Thus, we have proposed through this architecture, a set of components that we consider essential for the scripting of a learning activity, and which allow having a global vision of a learning activity. To be defined, the specific objective, the intermediate objective which made it possible to propose the learning activity, the problem situation, the task and its instructions, the nature of the group of learners for carrying out the task, the material didactic and technological necessary for the accomplishment of the task, the management of time, the role of the teacher and the activities of the learners in the different actions of the learning activity, as well as the documents to be proposed to the learner and their correspondent for the teacher.

The fourth and last block concerns learning activities focusing on the transfer activity which allows the reinvestment of knowledge in a context other than that of initial learning through which the learner must reinforce, consolidate and fix his acquired by generalizing them.

In perspective of this work, we are thinking of expanding our work by moving from the conceptualization of an educational scenario of a face-to-face learning situation to the conceptualization of an educational scenario of a distance learning situation, it that is to say to pass from a face-to-face teaching to a distance teaching. This implies a change in the working context and at the same time a change in the different interactions. Indeed, the integration of Information and Communication Technologies gives the opportunity to rethink and relocate, in space and time, the exchanges between teachers and learners and promote new approaches for activities learning.

Compliance with ethical standards

Disclosure of conflict of interest

Khaldi Maha, Barhone Jamal, Erradi Mohamed and Khaldi Mohamed declare that they have no conflict of interest.

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