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SAGGI – ESSAYS

ELEMENTS OF KNOWLEDGE INTEGRATION FOR TEACHERS TRAINING

di Maria-Chiara Michelini

This contribution analyzes the relationship between formal knowledge and practical knowledge in the context of teachers' initial and in-service training, with particular regard to the Italian context. The analysis is carried out in critical form, starting with some constructs specimens on which has developed the experience of the last 20 years. Reasoning allows to develop some considerations regarding the possibility of promoting in this context forms of virtuous integration between formal knowledge and practical knowledge.

Il presente contributo analizza il rapporto tra saperi formali e saperi della pratica nell'ambito della formazione iniziale e in servizio dei docenti, con particolare riguardo al contesto italiano. L'analisi viene svolta in forma critica, a partire da alcuni costrutti esemplari su cui si è sviluppata l'esperienza degli ultimi 20 anni. Il ragionamento consente alcune considerazioni in merito alla possibilità di favorire in questo contesto forme di integrazione virtuosa tra saperi formali e saperi della pratica.

1. Introduction

The relationship between formal knowledge and practical knowledge has long established a fundamental junction to think and rethink teachers' formation, both in initial phase and during professional practise. In a peculiar way, in Italy, Primary Formation Sciences degree has taken on the task of bringing on topic this

junction both from the point of view of the theoretical elaboration and from its structural implementation and methodology. Within the broad scope of in-service formation this needing is supported by the paradigm of research-action (r-a, from now on) which proved to be useful for translating and supporting the underlying demands, albeit with limitations and difficulties. The double historical reference has essentially an exemplary character offering the possibility to refer, in paradigmatic way, to a broad, shared and consolidated cultural baggage, which has given birth to a rich bibliography and to a range of well known and significant experiences. In this sense both the examples lend themselves to develop the reflexion we'll try to produce, offering a common reference background.

Obviously they don't exhaust the panorama of many formative proposal realised referring to different cultural frames and models, when not in contrast with each other, highlighting, on the one hand, a phenomenon of excess supply and, on the other, the lack of solution in axiological an conceptual questions related to the meaning of education today.

A common element to many experiences, and their corresponding models, is the perception of urgency of the problems set in contemporary historical context, marked by highly controversial cultural changes which succeed each other in extremely rapid rhythms. Those who deal with teachers' education and formation clearly perceive the need to face them, offering effective answers. Practice's plan, in this sense, establishes some kind of research's engine that moves, therefore, from reality's level to the idealistic one, passing through the ability to solve emerged problems. In this sense, and starting from this urgencies, practical knowledge strongly exerted their pressure and, in the same time, their being necessary for solutions that can't be not effective, id est able to solve unpublished problems. Cyberbullying phenomenon, planetary migrations, radical changing in involved familiar's structures, with the consequent transformation of emotional profiles and experiences, strongly impose the need for attention and solution of the problems that derive from it. It seems to be true only what al-

lows a, at least temporary, solution of the problems that, in themselves, prevent or render ineffective teaching and learning. In this sense is indicative, for example, the path followed by Evidenced Based Education (EBE) culture, which shows a vision of research and educational practice based on scientific evidence. This concept started from the critical consideration of self-referential nature of educational research, that was unable to produce shared and reliable knowledge, despite the investments (Hargreaves, 2007). According to this concept, by making the reliable and promising results emerge with field survey, the most effective practises can be oriented. This issue is traced back to the chronic separateness between theoreticians and practice's operators, with well known mutual damage. In this coarse and approximate synthesis of EBE's orientation one of the most common form of rehabilitation of practical knowledge can be traced, capable of proposing and interpreting effective solutions to real problems in the educational field. Doing somehow assumes a form of autonomy with respect to thinking and knowing, understood in a theoretical sense. For some time among the supporters of this evidence based culture the need for critical cautions has been affirmed. Antonio Calvani (2012), for example, in his international theoretical-methodological analysis on effective and inclusive didactics, puts that of evidence as a problem. In any case this model allow us to highlight the aforementioned tendency to overturn the historical dependence of practice from theory, with consequent assumption of a sort of autonomy of practical knowledge respect to the theoretical ones.

The risks of this tendency have been stressed from many sides and with different motivations, considering the necessary, but not sufficient, proof of the goodness of the results to justify a practice's validity. While assuming the need to take responsibility for ensure the effectiveness of doing, the need of including this element in the context of a fruitful tension between theoretical and practical level, between formal and practical knowledge is underlined.

2. Knowledge in initial teacher education

Primary Formation Sciences degree, especially in its original matrix (L 341/1990 and DM 26/05/1998) addressed and structured this approach, applying it to the initial teachers' formation. The course, divided between actual teachings, workshops and internships, attempted to compose and weld, in a unitary model, all the elements considered necessary for the professional training of the future teacher: the formal acquaintance of conventional knowledge, their languages and their rules, with the methodological skills acquired within the laboratories, and their contextualization in the environments of the actual teaching activity, schools. Traineeship, in this sense, is the cornerstone of an idea of training for *expert knowledge*, as the ability to use knowledge and skills learned in theoretical contexts and to combine them in an appropriate manner to new and, at least partially, unexpected situations that demand specific and targeted solutions. This knowledge has to be built and nurtured so as to ensure, for the entire duration of the professional career, teacher's ability to trigger virtuous circularity between theory and practice, continuing to learn, tackling and solving problems, research, grow. In this sense, the construct of cognitive apprenticeship (developed above all by Allan Collins, John Seely Brown and Susan Newman in 1995) and that of reflective thought, deweyanly understood, was interpreted as an investigation that combines mental reasoning and action in the real context, starting from problematic and indeterminate situations. Practice, in this model, is not a kind of free zone, removed from the comparison with formal knowledge by virtue of its autonomous ability to effectively solve the real problems, but is the privileged point of coagulating different knowledge, living dynamics and rich among them.

On the threshold of 20 years from the establishment of the academic course that prepares future nursery and primary school teachers, it can be said that has interpreted new forms of cognitive apprenticeship. The reflexive component, which distinguishes them from the traditional apprenticeship, takes on particular im-

portance and give rise to complex and varied methodological structures. We must remember, in fact, that in artisan workshops one learned a craft through the strategies of:

- *modeling*, phase in which the role of the "model" is prevalent, called to show the execution, also explaining the processes involved in the performed action, so as to allow the students, through observation, to construct the underlying conceptual scheme and internalize it;
- *scaffolding* or *coaching*, in which the student actually acts but is constantly observed and assisted by a teacher who offers suggestions, feedbacks, recovery information, reintegration; therefore the experience is continuously guided by the expert;
- *fading*, that is the progressive removal of the supports offered by the expert, until the apprentice becomes autonomous, able to do alone.

In any case, the traditional model is characterized by the strong role of the expert, who, by virtue of his competence, animates and wisely manages different phases, steps and, within them, individual actions. It can be said that traditional apprenticeship fully grasps the instance of situated learning (Ajello, Pontecorvo & Zuccher-maglio, 1995), an aspect strongly emphasized by constructivism. At the same time it does not seem to provide sufficient response to the idea of knowledge building by the subject, invoked unanimously by the best voices of contemporary pedagogical reflection, Dewey in the first place. In this sense, cognitive apprenticeship emphasizes this aspect, through the introduction of a robust meta-cognitive and reflective component. Through it, formation's subject assumes the centrality of the processes that are carried out in real contexts, but requires the return of thinking on acting, so as to investigate problems, hypothesize solutions, also through the use of acquired knowledge, both on the theoretical and on the methodological level, to understand their unexpressed intentions, bringing them back to implicit beliefs, etc.

To do this, in cognitive apprenticeship, are introduced other strategies of *narration* of their own experiences, of *exploration* of new solutions or theories, of *confrontation* with experts who can provide indications, knowledge, observations.

The experiences achieved in various Italian universities, although different between each other, have variously interpreted this reflective element, characterizing, through it, the training path of future teachers. This has given rise to a rich repertoire of appropriate instruments useful to drive students' reflection on the experience observed and experienced in classrooms, in research for a constant link between the same reflection and formal knowledge, acquired in the actual academic path. These instruments are traceable to the various types:

- narrative-diaristic, then open, of the "paper and pencil" type (exercise books, diaries, newspapers, observation of critical episodes or anecdotal records, etc);
- structured and closed (observation grids, check-lists, rating scales...);
- mixed, as in the case of videotaped observation.

All of this allowed what we call *reflective conversation with situation's materials* (Michelini, 2013; 2016), which we consider to be the first condition of reflective thought. It consists, in the words used by Schön (1983, p. 253), in bringing out, criticizing, restructuring and verifying on the field, the intuitive understandings of phenomena of which one experiences oneself. Talking about some professionals he observed in various fields, with this expression he indicates the widespread custom among them, especially in front of problems apparently difficult to solve. Professionals, whether engineers struggling with the design of a building, psychotherapists in the relationship with their patients, brush and paint manufacturers, grappling with the criticalities reported by the buyers, activate dialogues, exchanges, narrations starting from the objects mentioned they are busy. Conversation allows the dynamic flow of reflection from the concreteness of practical situations (material situations, in

fact), towards thought and back. In this form of dialogue, future teachers, as well as the professionals observed by Schön, interpret the meanings of facts and problems, share them with others, think back to what they have done, bring out their convictions, find any inadequacies and imagine solutions to problems and alternatives to situations.

Overall, this experience promoted forms of comparison between subjects involved in the training course in question (students, university professors, school teachers/tutors and university teachers/tutors), giving rise to a rich and innovative dialogue, compared to previous history. At the same time the goal of integration between institutions and, from the point of view of reflection, knowledge seems still not fully achieved. This rich dialogue characterized by various forms has given birth to experiences, researches, exchanges, paths and events, which have facilitated what we call *emancipatory mirroring* (Michelini, 2013; 2016). This is the second condition of reflective thought, which emphasizes the character of third party. It refers to the conscious use of mirrors that reflect and animate reflexive conversations, showing various aspects of the issues from multiple points of view. Mental images of actions, of facts, of examined problems, i.e. investigation's contents, which are projected into a reflecting surface, to be subjected to what Watzlawick, Weakland and Fisch (1974) indicate as the subtle art of restructuring and redefinition of mental images, in view of changing. The emancipatory adjective emphasizes how the mirroring thus performed is aimed, not at representing things as they are and for how we have become accustomed to seeing and thinking about them, but to transform them, to make them evolve. In this sense, we can affirm that the reflective dialogue, dynamically animated by forms of reflection, has a liberating function for thought.

Referring to teachers' initial training we can say that practical knowledge (mainly expressed by school teachers and tutors) and formal knowledge (expressed by university teachers), mirror each other to redefine the mental image of the examined object.

However, the activation of real *communities of thought* (third condition of reflective thought, synthesis of the first two) continues to be exhausting and incomplete. We are talking about community of

thought when it is characterized by *dialogue*, *democracy*, *reflexivity* and *reciprocity* (Michelini, 2016, pp. 71-111). Reciprocity itself seems to be, in this case, the most difficult characteristic to implement. With it we mean that the members of a community choose to be essential element of self development one for the other, starting from sharing the intention to think starting from practices. Talk about community of thought is not enough the commitment to improve practices or solve problems; it's necessary to share one's own thoughts on what one does, since it is believed that this is needful, for oneself and for others, of which one asks for the reflection's contribution on one's own thoughts as a necessary element for the development of oneself. In case of future teachers training this requires the intention of a mutual exchange between all kind of knowledge and, consequently, by all the representative subjects of the same. Despite the intensity in the activated dialogue, starting from the experience of internship in real educational contexts, the direction of the same has been biased in a top-down direction (from formal knowledge, to practical ones) struggling, in the opposite way, to find forms of reciprocity. There are many reasons for this difficulty. The former are of historical-cultural type, based on the traditional assignment to formal knowledge of a pre-eminent and enlightening role compared to practical ones, traditionally considered as applications of what was theorized at other levels. There are also reasons of structural and organizational nature, considering the physical and geographical separation of those locations where school activity takes place, compared to those in which the academic training is done. School and university, in fact, have different tasks and roles, with objective difficulties in reconciling their respective activities. The same figures called to carry out this task express the different forms of knowledge involved in university education of future teachers. This, naturally, makes the plurality of comparison possible, but, at the same time, poses the difficulty of recomposition of paths and of a reflection in a unitary sense. For example, the conclusive moment of the course, which is the elaboration of a degree thesis developed in one of the curricular disciplines, with the final traineeship report, concerning the reflection

on a portion of the experience carried out at school, is an opportunity to experiment the intertwining of formal and practical knowledge. A research for connections and mutual contaminations between the two documents, and the two moments, has started, but not yet mature. Integration's degrees often depend on peculiar circumstances and, above all, the bi-directionality of reflection should be increased: from practice to theory, and vice versa.

We believe that this auspice is valid not only for principle reason, but also for an important pragmatic need: the fundamental objective of initial teacher training is to ensure that the individual teacher would be able to develop the best reflection and integration of formal knowledge and practical knowledge for the whole professional career. Possible asymmetries between them can favour the inevitable tendency to let oneself be engulfed by real problems of everyday professional life. Routines and practical emergencies, in fact, are likely to overshadow theoretical knowledge, even if acquired, making them appear abstract and of little use. This risk of empiric drift is accentuated when you are not able (because not used to doing so) to make theoretical knowledge dialogue with real situations, on which they can throw light and from which, vice versa, they can receive solicitations, questions, motives of development.

3. Hints for in-service formation

As we said at the beginning of this paper, we will now develop some reflections on the r-a paradigm, with reference to in-service teacher training. It has been used in many situations, especially in face of unprecedented problems. In summary, we recall that r-a is an empirical research model, oriented mainly to decisions, which adopts an essentially idiographic logic and mainly qualitative tools and techniques. Its fortune in the scholastic field is linked in particular to two peculiarities, that is to say, the existential involvement of the actors (Pourtois, 1986, p. 144), envisaged as a characterizing element, and the possibility of realization in real contexts,

right there where and when difficult problematic situations arise. We talk about r-a in school contexts to intuitively indicate the intention to design and implement innovative experiences able to face the ever-new problems that emerge in them. Especially in cases where in-service training arose by initiative of schools facing unprecedented problems, r-a paradigm founds an answer that seemed adequate to effectively combine practice and research in a theoretical sense. R-a combines, in fact, the possibility of research and training, faced with practice's emergencies. Baldacci (2007) synthesized this methodology:

> R-a starts from an educational *situation*, in which we find something unsatisfactory, and we come to define from the analysis (in provisional form) a *problem*, for whose solution we formulate a project in light of certain educational *models*: this project will then be translated into *actions*, giving rise to partly foreseen and partly unforeseen *effects*, followed by *evaluation*, based on the *study of the coherence* between the problem to be solved and the effects found; this study makes use of a *refinement* of experience and aims to promote a *self-correction* process that allows to better define the problem, to progressively adjust the project and to critically rethink the reference educational model. This "cycle" concerns the whole project as much as its possible phases (or sub-projects), and therefore it can be repeated several times during the same r-a (pp. 88-89).

This description let us highlight how the r-a model allows to combine formal knowledge and practical knowledge, in a research path of rigorous and effective solutions to problems posed by educational situations. In particular, the indication to refer the project to educational *models*, requires the theoretical frames of reference to make explicit. Therefore, it's not enough to imagine an effective solution to problems, perhaps emerging from the practical knowledge of teachers, it is necessary to clarify to which educational model it can be traced back. This involves a reflection and a decision in the research group. This reflection is about bringing to light the implicit in practices models, the comparison between them, the theoretical deepening, also in light of formal knowledge on the subject. In this phase the role of training allows to activate and en-

rich the theory-practice dynamic, leading to elaborate a consequent *project*. This allows the following operations (translation into actions, evaluation, consistency's study between problems and effects) to give life to the *refinement device* of the experience, aimed at *self-correction*. This will concern both doing and thinking, reviewing, once again, both practical and formal knowledge. The fact that this is not a distinct moment, but a "cycle", therefore a way of proceeding in various phases of the path, testifies the ability of r-a to keep alive the dynamic between theory and practice, between formal knowledge and practical knowledge.

Even for r-a we point out, in fact, the risk of empiric drift, due to the lack of insistence on the implication of implicit theoretical models and clarification of theoretical models within which research intends to place itself; for the imbalances between training and action, to detriment of the former, sometimes under-sized; for the insufficient investigation of effects (expected and unforeseen, desired and undesirable) and on the consequent self-corrective measures to be made, not only on the operational level, but also on the theoretical approach level. Some slips registered in many cases with respect to this ideal perspective have, in fact, weakened the r-a, not allowing its full realization. In particular, beyond the effectiveness of some researches that have been able to develop strategies to solve specific problems, they have not always contributed as they could, by virtue of the goodness of the work carried out, to conceptualize the outcomes, in order to contribute to theoretical and formal elaboration on the topic.

However, this would have allowed greater transferability of the results, which often see their effectiveness reduced to the limited context in which the research was conducted.

4. Final considerations

This rapid analysis that has just been carried out, allows us to develop some considerations about the topic dealt with regarding the initial and in-service training of teachers, in the direction of a

possible virtuous integration between formal knowledge and practical knowledge.

The first consideration regards the ground on which it is played, that is to say the real educational situations, which constitute at Dewey (1929, p. 21) the test bed of every theory: the definitive proof of the value to be attributed to the result of all researches. This means that the integration of knowledge must be sought from real situations, which, in this sense, acquire a central position for every form of knowledge.

At the same time, practice and its knowledge cannot exhaust their horizon within them. Once again Dewey (1929, p. 30) had clarified the meaning of this point, stating that: what is absolutely necessary is that some sort of vital current flows between the one who works in the practical field and the one who operates on the theoretical level. Without this flow, the second cannot judge the real extent of the problem to which it is dedicated.

Experiences of initial and in-service training referred in this paper show, in our view, the importance of devices that ensure this flow. In particular, they indicate the need to promote the bi-directionality of the same. The link between them, in fact, is such only if it is reciprocal, if the knowledge of the practice can be modified by formal knowledge, which illuminates its implications and meanings and, at the same time, if formal knowledge elaborates questions and contributions from acting and knowing how to act. Therefore, easy empiricist drifts and temptations of self-sufficiency must be avoided. But this reciprocity can't only be affirmed in abstract, as a principle, but rather must be supported and made possible by appropriately designed and implemented strategies, devices, actions.

On this level it's necessary to invest resources and experiment with new forms of facilitation, especially with regard to forms of collaboration between involved subjects. This flow, in fact, has in any case an intra-individual dimension (as in case of future teachers, called to combine different types of theoretical, methodological and practical knowledge acquired in the course of university studies). At the same time there is also a relational dimension be-

tween depositaries of different knowledge also by degree of formalization. With regard to the teachers' training, we believe that it's appropriate to continue seeking forms of integration that encourage the deepening of exchanges and synergies, in the direction of knowledge's reciprocity.

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