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Assisting Teachers in Curriculum Innovation: An International Comparative Study

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ABSTRACT

Background. All endeavors for the innovation of a school curriculum struggle with the question of defining the role of the adult in this process. In particular, issues arise about how to achieve professionalization of the teacher, especially when the professionalization means realizing an innovative curriculum.

Objective. A crucial role in achieving innovations is played by the teacher-educator, the person who is in charge of assisting the teacher, and in so doing, integrating the theory behind the innovation with concrete classroom practices. In this article we discuss both a Piagetian and a Vygotskian way of assisting teachers in the innovation of the school curriculum, starting from their assumptions on the importance of the interaction between the teacher-educator and the teacher, and focusing on the concrete classroom activities of the pupils.

Results. Our research is based on comparing the Piagetian *Pédagogie Interactive*, developed in Paris, with the Vygotskian approach of *Developmental Education*, developed in the Netherlands. Apart from the clear commonalities of the two approaches, we also point out basic differences, which are reflected in the methods of teacher assistance. The biggest difference between the two approaches is the extent to which the teacher may guide the pupils' learning, and, accordingly, how the teachers are assisted by a teacher-educator to adopt the teaching style that is consistent with the theoretical ideas that underlie the two approaches.

Conclusion. When innovating curricula for the future, it is important to provide pupils and teachers with up-to-date knowledge, skills, and attitudes. Both teachers and pupils should be guided by more knowledgeable others, who know both the new content and the theoretical background, and take the responsibility for promoting development in a meaningful way. The teachers need assistance from a teacher-educator, while the pupils need stimulating support from their teacher.

Keywords: Pédagogie Interactive; Developmental Education; teacher; teacher educator; interaction; Piaget; Vygotsky

Highlights:
- Curriculum innovation is a theory-based process;
- The core of a curriculum innovation process is based on the interaction between teachers and teacher-educators;
- Different theoretical frameworks have to be taken into account.

АННОТАЦИЯ

Актуальность. Попытки внедрения инноваций в школьную программу рано или поздно сталкиваются с проблемой определения роли взрослого в этом процессе. В частности, возникают вопросы о том, как добиться профессионализации учителя, особенно когда профессионализация означает реализацию инновационной учебной программы.

Цель. Решающую роль во внедрении инноваций играет учитель-наставник, человек, который отвечает за оказание помощи учителю, и, при этом, интегрирует теорию, лежащую в основе инноваций, с конкретной школьной практикой в отдельном классе. В этой статье мы обсуждаем два подхода к оказанию помощи учителям во внедрении инноваций в школьную программу, названных нами подходом Ж. Пиаже и подходом Л.С.Выготского. При этом мы отталкиваемся от их предположений о важности взаимодействия между учителем-наставником и конкретным учителем и делаем акцент на конкретной деятельности учеников в классе.

Результаты. Наше исследование базируется на сравнении интерактивной педагогики Ж. Пиаже, разработанной в Париже, с подходом Л.С. Выготского к развивающему образованию, разрабатываемому в Нидерландах. Помимо явных общих черт двух подходов, мы также указываем на основные различия, которые выражаются в используемых способах помощи учителям. Основные различия между этими двумя подходами заключается в том, в какой степени учитель может направлять деятельность учащихся и, соответственно, в том, как именно учителя с помощью учителей-наставников приводят свой стиль преподавания в соответствие теоретическим идеям, лежащим в основе этих двух подходов.

Вывод. Для внедрения инноваций очень важно вооружать как учащихся, так и учителей современными знаниями, навыками и установками. Эту задачу могут реализовать специалисты, являющиеся более осведомленными как с точки зрения содержания, так и теоретических оснований, что позволит обеспечать развитие и тех и других в нужном направлении. Учителям необходима помощь учителя-наставника, в то время как учащиеся нуждаются в стимулирующей поддержке со стороны своего учителя.

Ключевые слова: Интерактивная педагогика; Развивающее образование; учитель; педагог-наставник; взаимодействие; Пиаже; Выготский

Ключевые положения:
- Внедрение инноваций в учебный процесс должно быть теоретически обосновано;
- Ключевым для внедрения инноваций в учебный процесс является взаимодействие между учителям и учителем-наставником;
- Важно учитывать, что внедрение инноваций в учебный процесс может быть основано на различных теоретических парадигмах.

RESUMEN

Introducción. Todos los esfuerzos por la innovación del currículo escolar luchan con la cuestión de definir el papel del adulto en este proceso. Particularmente los intentos de profesionalización del docente es una cuestión pertinente, especialmente cuando la profesionalización está destinada a realizar un currículo innovador.

Objetivo. Un papel crucial en tales innovaciones lo juega el formador de docentes, quien se encarga de ayudarle en este proceso y, al hacerlo, de integrar la teoría detrás de la innovación con prácticas concretas en el aula. En este artículo discutimos una manera piagetiana y vygotskiana de ayudar a los profesores para la innovación del currículo escolar, partiendo de supuestos sobre la importancia de la interacción entre el formador de profesores y el profesor, y centrándose en las actividades concretas de los alumnos en el aula.

Resultados. La investigación se basa en una comparación de la "Pédagogie interactive" de Piaget, desarrollada en París, con un enfoque vygotskiano de "Educación desarrolladora», desarrollado en los Países Bajos. Aparte de los claros puntos en común de los dos enfoques, también se señalan las diferencias básicas, que se reflejan en las formas de asistencia del profesor. La mayor diferencia entre los dos enfoques es la medida en que el profesor puede orientar el aprendizaje de los alumnos y, en consecuencia, cómo los profesores son asistidos por un formador de profesores para apropiarse del estilo de enseñanza que es coherente con las ideas teóricas que subyacen a los dos enfoques.

Conclusión. Al innovar los planes de estudio para el futuro, es importante proporcionar a los alumnos y profesores conocimientos, habilidades y actitudes actualizados. Tanto los profesores como los alumnos deben ser guiados por otras personas más conocedoras (que conozcan tanto el contenido nuevo como los antecedentes teóricos) que asuman la responsabilidad de promover el desarrollo de manera significativa. Los profesores necesitan la asistencia de un formador de profesores, los alumnos necesitan un apoyo estimulante de su profesor.

***Palabras clave**:* Pédagogie interactive; educación desarrolladora; profesor; formador de docentes; interacción; Piaget; Vygotsky

Destacados:

- La innovación curricular es un proceso basado en la teoría;
- El núcleo de un proceso de innovación curricular se basa en la interacción entre profesores y formadores de profesores;
- Deben tenerse en cuenta diferentes marcos teóricos

RESUME

Origines. Toutes les démarches envers l`innovation du programme d`enseignement de l`école ont pour but de résoudre la question de définir le rôle de l`adulte dans le processus. En particulier c`est une question pertinente de faire des tentatives dans la professionnalisation de l`enseignant, surtout lorsque la professionnalisation est destinée à la réalisation du programme d`enseignement innovateur.

Objectif. Un rôle décisif dans telles innovations joue le formateur d'enseignant qui est responsable de l`aide à l`enseignant dans ce processus, et en faisant ainsi, d`intégration de la théorie derrière l`innovation aux pratiques concrètes de la classe. Dans cet article nous discutons la voie piagétienne et vygotskienne d'aider les enseignants à innover dans le programme d`enseignement, en partant d'hypothèses concernant l'importance de l'interaction entre le formateur d'enseignants et l'enseignant, et de focus sur les activités concrètes des élèves en classe.

Résultats. La recherche est basée sur la comparaison entre « La pédagogie interactive » piagétienne élaborée à Paris, et l`approche vygotskienne de « L`éducation de Développement », élaborée aux Pays-Bas. En dehors des similarités des deux approches, les différences sont aussi marquées ce que se sont reflété dans la manière de l`assistance de l`enseignant. La plus grande différence entre ces deux approches est à quel degrés l`enseignement peut guider l`apprentissage des élèves et également comment les enseignements sont assistés par le formateur d`enseignement pour s`adapter le style d`enseignement qui est cohérent avec les idées théorétiques qui sont liées aux deux approches.

Conclusion. Lorsque les programmes d`enseignement sont innovés pour la future, c`est important de fournir aux élèves et aux enseignants des connaissances, des compétences et des attitudes à jour. Tant les enseignants que les élèves doivent être guidés par d`autres personnes mieux informées (connaissant à la fois le nouveau contenu et le contexte théorique) qui assument la responsabilité de la promotion du développement de manière significative. Les enseignants ont besoin de l'aide d'un formateur d'enseignants, les élèves ont besoin d'un soutien stimulant de leur enseignant.

Mots clés: Pédagogie interactive; Éducation de développement; enseignant; formateur d'enseignants; interaction; Piaget; Vygotsky

Points principaux:

- L'innovation du programme d`enseignement est un processus basé sur la théorie ;
- Le cœur d'un processus d'innovation du programme d`enseignement est basé sur l'interaction entre les enseignants et les formateurs d'enseignants ;
- Différents cadres théoriques doivent être pris en compte

Introduction

Curriculum Innovation and the Role of the Teacher

Toward the end of the 20th century, people became increasingly dissatisfied with the progress that had been made in the previous century in realizing good universal education. Indeed, too many children still don't enjoy a dignified life with health, safety, and good care. Perhaps we have been focusing too much on the so-called "nature of the child" and have forgotten the indispensable roles of educators (parents, teachers, and teacher-educators), especially in their roles as the children's mentors.

However, in one sense we can still maintain that progress was made during the century. The ancient idea of the passive child receiving cultural information from good-willed educators is now considered outdated and definitely replaced by the image of the child as a constructive participant in culture. Similarly, the idea of reticent educators, restricting their pedagogical actions primarily to organizing a rich environment in which the "natural child" can flourish, is more and more in doubt. However, it has turned out to be more difficult than people expected to turn this idea into new educational practices, or new curricula. Nevertheless, the idea of the active child in interaction with others is now definitely settled, and being implemented in everyday (pre)school practices. Slowly we are beginning to innovate education and the school curriculum, taking this idea as a starting point. Every long journey starts with the first step.

The idea of the active child can be traced back to three main, but independent sources (alphabetically): Dewey, Piaget, and Vygotsky. The three of them were very critical of the behaviorist point of view that formed the dominant psychological approach in the first half of the twentieth century, and that had opted for a view of the child as a receptive object to be molded according to the educators' aspirations. Dewey, Piaget, and Vygotsky refuted this view. Although they personally had different psychological views on learning and development, they definitely shared the idea of the child as a *constructor* of knowledge and consciousness, and emphasized the importance of *interaction* (see Dewey, 1938; Piaget, 1935; 1965; Vygotsky, 1926).

In the wake of these three grand old men of pedagogy, people all over the world have been trying to develop concrete methods for educating children according to this view. In many schools all over the world, attempts are currently being made to innovate the curriculum towards a course of study that accepts children's productive activity and interactivity as basic principles. We believe that curricula based on these principles can in due time provide for an empowering curriculum for children. Not only for a privileged group of children, but for every child.

However, the concept of an innovative curriculum is still not a curriculum in practice. Dewey was most explicit in applying his point of view to the school curriculum (see Dewey, 1938), but by extrapolating from the two other approaches, we think it is possible to construct an innovative perspective on curriculum development and implementation that is valid for all.This perspective can be summarized in two points:

1. The new curriculum (whatever it may turn out to be) should be a meaningful instrument for the teacher which he or she should be able to employ *flexibly* for the profit of all children. An implication of this point of view is that the curriculum should not be a fixed document that strictly prescribes the teachers' actions, regardless of the personality of the teacher, and the differences among the children. Rather, the new curriculum should be a *flexible curriculum strategy,* explaining pedagogical principles to teachers, and suggesting applicable teaching contents according to these principles. The actual curriculum is a provisional document, co-constructed by the teacher and the children; and

2. Accordingly, the teacher's adoption of the curriculum strategy as a meaningful instrument cannot be based on a transmission process in which the curriculum is handed over to him or her from the "all-knowing" scientist (innovator or teacher-educator). On the contrary, the strategy should be co-constructed through meaningful interaction between the teacher and a pedagogue or a subject specialist.

Both principles for curriculum development and implementation follow from our assumption about a parallelism between active learning by the pupil (in interaction with the teacher) and learning by the teacher (in interaction with another specialist). It is obvious that the teacher should be seen as an important agent in the curriculum innovation process, but equally crucial is the role of the person who assists the teachers in adopting the curriculum strategy and putting it into practice for the benefit of the pupils.

In this article we report on a qualitative comparative study of two methods of accompanying teachers in their adoption of new curriculum strategies. More specifically, we compare the method of assisting teachers in innovative teaching practices which was developed by the Centre de Recherche de l'Education Spécialisée et Adaption Scolaire (CRESAS)[1] in France, with the approach that was developed in the Netherlands by a group of innovators, teacher-educators, and researchers. The French

[1] Center for Research of Special Education and School Adaptation. This center is a department of the French National Institute for Pedagogical Research (INRP). During our research, this institute was based in Paris, but in 2005 it was moved to Lyon and is housed within l'École normale supérieure de Lyon as 'Institut Français de l Education. See Wikipedia: https://fr.wikipedia.org/wiki/Institut_fran%C3%A7ais_de_l%27%C3%A9ducation

approach has evolved from the ideas of Piaget and Wallon (and in a way also from Freinet), and is embodied in a concrete innovative approach that is known as *Pédagogie Interactive*. The Dutch approach has evolved from a Vygotskian point of view and is embodied in an innovative approach that is called *Developmental Education*. Both approaches share the principles of constructivism and interactivity as explained above, and endorse the importance of teacher professionalization for the innovation of the curriculum.

In our comparative research we wanted to illustrate how the two approaches inform teachers about their respective points of view in ways that are true to their theoretical principles. More specifically, we wanted to show how teachers using the two approaches are assisted in the adoption of the innovative practices of the new school curriculum. Are there any differences between the two approaches and what are they? Given the different theoretical backgrounds of the two approaches, we can hypothesize that differences could most likely be found in the kind of guidance given by the teacher-educator: the *Developmental Education* approach giving more explicit and pronounced guidance, while the *Pédagogie Interactive* approach provides a provocative, but contingent kind of companionship. In the second view, it is not the children who should follow the teacher, but the teacher who tries to follow the children (Hardy, Platone, & Stambak, 1999). A more elaborate characterization of the communalities and differences between the two approaches will be given in the sections that follow.

We will first give sketches of the two approaches. Then we will describe our methodological approach and present the relevant empirical findings concerning the activity of the teacher "educators." In section 4 we will detail the comparison, check the tenability of our hypothesis, discuss the outcomes in the light of the theoretical frameworks, and speculate on what they might mean for curriculum innovation in the future.

Preliminary Remarks on the Two Approaches

Piaget and Vygotsky had much in common, but they were also aware of their huge differences. Unfortunately, they could never discuss their disagreements directly with each other, but in their writings, they did react to each other's work (see, for example, Vygotsky, 1987; Piaget, 1962). However, as Vergnaud (1999) justifiably points out, the Piaget to whom Vygotsky responded was not the Piaget we know today, and certainly Vygotsky was not reacting to the Piagetian approach as it has evolved during the last decades of the 20th century. So we have to be careful with sweeping conclusions about the impact of the differences between Piaget and Vygotsky.

Indeed, in his introduction to the English publication of *Language and Thought*, Piaget admitted that Vygotsky was right in his criticism on egocentric language. From these explanations by Piaget and later careful readings of his work, it becomes clear that Piaget's theory was certainly not a-social, as uncareful readings would have it. Several times in his work Piaget referred to the importance of social interaction for the development of the child. On the other hand, Vygotsky's emphasis on the importance of culture for development and his concentration on cultural influence by adults or more knowledgeable peers, does not rule out the importance of the role of the child

in the progression of individual development. So the present day versions of Piaget's and Vygotsky's thoughthave certainly come closer to each other.

Nevertheless, it must be admitted that both approaches have developed different theoretical languages to describe individual development. The Piagetian theoretical language focuses primarily on object-oriented actions and the level differences (*décalages*) between actors with regard to these actions; the Vygotskian theoretical language focuses primarily on tool-mediated action in the context of sociocultural activities and how more knowledgeable others help children to appropriate these actions and promote their cultural development. One could say that both theoretical frameworks approach children's development from different angles: the Piagetians primarily focus on the individual child and how he or she deals with the social (including the adult's) interactions he or she is involved in; children develop from natural individuals to social individuals. The Vygotskians focus primarily on interpersonal, sociocultural activities, and from this point of view try to understand people's individual development as embedded in such sociocultural activities; children develop from inherently social human beings to self-dependent cultural persons.

Both approaches agree on the importance of the adult for children's development. However, in the Piagetian approach, the core responsibility of adults is the organization of rich environments allowing interactions among children, whereas in the Vygotskian cultural-historical approach, the main responsibility of the adults is to get children involved in interactions in the context of sociocultural activities (practices), and help them with appropriating new tools, rules, and roles. These differences make it interesting to see how present-day versions of both approaches deal with the role of the adult and her/his attempts to promote the children's development.

The French Approach: La Pédagogie Interactive[2]

The French approach, called *Pédagogie Interactive*, was developed in the late 1960s by the CRESAS team. That center was founded in 1969 as a unit of the Institut National de Recherche Pédagogique in Paris, with the chief goal of studying school failure and developing concrete suggestions for its elimination. From the beginning, the group worked with an interdisciplinary team of pedagogical psychologists, researchers, and teachers (see Stambak, 1999).

The members of the CRESAS team drew their main theoretical concepts from an elaborated interpretation of the Piagetian framework. In fact, many of them had been students of Piaget. Knowing his work very well, they recognized the relevance that he attributed to the constructive character of the development of consciousness. In the early seventies they tried to apply this framework to solving the problem of school failure, but soon they discovered that dealing with the social interactions between children, and between children and adults, was essential for effective treatment of school failure. They acknowledged that Piaget himself did not sufficiently elaborate or study the details of the social interactions and the influence such interactions have

[2] Although our interpretations of Piaget's work was amply discussed with colleagues from INRP (especially Françoise Platone, Sylvie Rayna, and Marie-Anne Hugon), the representation of Piaget's theory here is entirely our responsibility.

on the individual child's development, although it turned out that Piaget himself appeared to be aware of their importance (see Piaget, 1935). So in the mid-seventies the CRESAS team realized that, to overccome school failure, further development of the notion of social interaction was necessary, especially in order to overcome the fatalistic point of view that attributes the causes of school failure only to the children themselves or to their social-cultural backgrounds.

In elaborating the social interactive dimension of childhood education, the members of the CRESAS team fruitfully used the work of other French psychologists and educators. Henri Wallon, for example, emphasized the importance of human actions, and stressed that the development of human action into forms of thinking was only comprehensible if we understand human action as an emotional expression that achieves social relevance through interpersonal interactions (see Wallon, 1942; see also Netchine-Grynberg, 1991). The work of the French pedagogue Célestin Freinet also had its influence on the CRESAS team. Freinet introduced language use, and particularly the use of printed language, as key to the cultural development of human thinking (see, for example, Freinet, 1968). The strongly theoretical viewpoint of Wallon and the strongly practical-pedagogical viewpoint of Freinet both reinforced the broad aspirations of the CRESAS group. The Marxist orientations of both Wallon and Freinet without doubt contributed to bringing this elaborated version of the Piagetian point of view and the Vygotskian point of view closer together (see also Netchine-Grynberg & Netchine, 1999; Delau, 1999; Rochex, 1999).

From the beginning, the interest of the CRESAS team was primarily in realizing an inclusive education. In her reconstruction of how the work of the CRESAS team on this issue developed, Stambak (1999) pointed out that gradually three basic principles began to characterize their work:

- the children should work *in small groups* while the adults stimulate the children to exchange ideas, and work and reflect together (see also Hugon, 1998, 1999a,b)
- the children must get *enough time and opportunities* to act and reflect together in order to realize what they are doing is important, as Hugon (1998; 1999a,b) has pointed out, that children get this time in order to be able to organize their learning process as an *open* exploratory endeavor that can lead in many directions and open up new questions;
- the adults should *transform the child/adult relationship*: the adult should learn to carefully listen to the children and observe them in order to stimulate their work and use the children's differing points of view for posing new problems.

In her application of the *Pédagogie Interactive* to the secondary school ('lycée' and 'collège'), Hugon emphasizes the importance of the *multidisciplinarity of the school tasks*: a learning activity must involve different intellectual disciplines (*e.g.*, literacy, history, mathematics, etc.).

In the CRESAS view, learning is essentially to be seen as a co-constructive process of knowledge production, which is realized in the interactions between all the partners of the activities: between adults and children but also among the children themselves. So, according to this pedagogical view, it is necessary to organize as often

as possible classroom settings in which the children are invited to work in interactive and reflective small groups about the content they are supposed to learn. It is desirable that the teacher is involved in that situation as a participant observer in order to provoke or sustain the interactive dynamic between children if necessary; to watch closely that all children are engaged; and to understand as much as possible with which problem the children are dealing.

All in all, the adult's role is primarily to keep these interactions going and fuel them with new and provocative situations, questions, and problems. A child's development, then, is ultimately always dependent on the concrete conditions he faces (including the pedagogical climate). The modification of these conditions will consequently change the quality of the relations among the children, as well as between the children and the adults. According to the CRESAS philosophy, concrete situations in educational institutions like crèches, schools, or families should be changed in order to create interpersonal relationships that are based on free and balanced communication and reciprocal trust (see Stambak, 1999, p. 9-10).

This fits very well with an important notion of Wallon when he speaks of the intelligence of situations ("*intelligence des situations*," Wallon, 1942, part III, conclusions). The adult, of course, is to a great extent responsible for the situations that emerge and for the interactive processes she/he is able to provoke. Basically, as Stambak (1999, p. 11) declares, "the interactive process and the procedures it entails, play a major role in cognitive development; probably, and most importantly, these processes are *constitutive* of cognitive development." (italics by Stambak).

In their many years of work, the CRESAS members have been able to produce several examples of practices in schools and crèches where these principles have been put to work (see Hardy, 1999 for an overview; Rayna, 2006; Rayna & Brougère, 2010). It appeared to be possible — besides presenting learning contents — to create situations for children in their classrooms which provoke them into reflections and interactions that promote their development in particular areas of culture like mathematics and grammar (see also CRESAS, 1991). An important classroom strategy for primary schools, for instance, is the introduction of *"ateliers reflexifs*." These ateliers propose delineated but relatively open classroom activities that make sense for the children and give them the opportunities to experiment and to practice cultural actions like writing in small groups for 30 to 45 minutes. Of course, these ateliers and the activities they provoke, include some constraints on the children, but they have to be open to some degree as well, in order to allow the children to follow their own paths of thinking.

All children participate for some time in these ateliers; the adults take care that no separate age groups are created. While one of the teachers in the classroom keeps an eye on the atelier, the other looks after the rest of the classroom activities (Hardy, 1999, p. 20). The main objective of the teacher is not the transmission of ready-made knowledge, but to propose situations that entice children to act and speak freely on the basis of their own understanding. The teacher should take the children's actions and utterances seriously, question these, or encourage the children to question the actions and utterances of each other. In this way the children can be stimulated to develop the required knowledge and abilities themselves. Teachers, indeed, can appro-

priate this style of interacting with children, learn to follow children in order to "ease themselves into the course of children's thinking and provide them on the right moment with the knowledge that fits the questions of the children themselves." (Hardy, et al., 1991, p. 18; Hardy, 1999).

Although such *ateliers* appeared to be useful in primary school, for secondary school they turned out to be less effective, due to the fact that in secondary school, more subject-bound restrictions have to be followed. However, it is assumed that the basic principles of the *Pedagogie Interactive* can still be applied at this level when the teachers succeed in activating the pupils' interests and reflections.

In sum, the essence of the *Pédagogie Interactive* approach amounts to *arousing* children's own understanding of things, *adjusting* teaching actions to the intellectual proceedings (*démarche*) of the children, *questioning* those ways of thinking in order to stimulate the children to reflect upon their actions, *observing* how these questions and reflections work out on the proceeding of children's thinking, and *adjusting again* to this new situation. Always endorse the children in their new ways of doing and thinking.

The interesting question for us now, of course, is how the members of the CRESAS team help the teachers with adopting this point of view, and at the same time stay true to their own principles. This process of what they call "*accompagnement formatif*" will be described in section 3.1. First, we give a description of the *Developmental Education* concept in the Netherlands.

The Dutch project: Developmental Education

The Dutch project, called "*Basisontwikkeling*" [Basic development], started out in the mid-eighties as an attempt to innovate early education in the Netherlands, at a moment when the systems of a separate Kindergarten (for the 4-5 year-olds) and the primary school (for the 6–12 year-olds) were integrated into one encompassing primary school system. In the `90s this project was followed up with a similar approach for preschool education called "*Startblokken*" [Starting blocks].

Both projects adopted an interpretation of Vygotsky's theory that endorses the cultural status of child development. Children are from birth part of a cultural community, and the child is dependent on the members of this community for its activities and development. Basically, culture "seeps" into a child's life and mind by the cultural tools (material tools, like spoons, knives, pen, measuring devices, etc., or symbolic tools like concepts, norms, etc.) provided to the children by adults or more knowledgeable peers. So the community — or to put it more precisely, the *adults and more knowledgeable others* in this community — essentially have a pedagogical responsibility for showing[3] children how to use these tools.

It is by participating in shared sociocultural practices and teaching the contextual use of cultural tools, that adults can give guidance to children, and create the best conditions for optimizing the children's potentials for the improvement of their participation in the community's activities (van Oers, 2012b). Children can participate

[3] It is interesting to note here that the term 'didactics' in western languages is derived from the old Greek word 'deiknumi' which means "showing."

as legitimate partners just because they are accepted as such by other members of the community, and because they get assistance from other members of that community when playing their role in sociocultural practice. It is precisely the points where children are assisted and want to be assisted, that indicate the meaningful points for future development, or to put it in the well-known Vygotskian terminology: here new zones of proximal development are created. This interpretation of Vygotskian theory is quite common nowadays (see Vygotsky, 1978; Lave & Wenger, 1989; Rogoff, 1990; Rogoff et al., 1993; Wertsch, 1985; Forman, Minick, & Stone, 1993; Engeström et al., 1999; Hedegaard, 2002; van Oers, et al., 2008).

As to the educational process, the best characterization is probably expressed as **guided/guiding participation**. In this process the teacher participates as one of the partners of the sociocultural activity and brings in her or his ideas with respect to the questions at hand. It is important to note that behind this view on guidance, there is the conception of collaborative activity, that in turn is based on the assumption of *distributed intelligence*.

The idea of distributed intelligence holds that the intelligence of a person is not restricted to the individual: basically, it is a function of the cultural structures and resources of a group's activity (the objects, tools, help structures, etc.). Hence a person's intelligence is actually distributed over different resources, and thus the major point of characterizing intelligence is not in determining who posseses what knowledge, or who contributes what to the shared activity or to the final product. The major point is how the different resources are usefully put together in an activity and in the product, in such a way that these can be acknowledged as significant products from each participant's point of view and resulting from each participant's own efforts. So when children (or teachers for that matter) are working in a group, the essential thing is not whether they have had the same share in the activity or in the product, but rather: can the collaboration be arranged in such a way that all participants recognize the results as their own and feel they are co-owners of the activity as a whole and its outcomes?

The idea of distributed intelligence radically solves the problem of asymmetrical relations in educative and other cooperative processes, by accepting them as unavoidable and looking for ways of pooling the participants' different resources for the benefit of all (Salomon, 1993; see also Hicks, 1996 for further elaboration, especially the chapter by O'Connor & Michaels). Vygotsky's basic assumption of the social origin of all intellectual functions (Vygotsky, 1963) clearly resonates with this interpretation.

A special consequence of this collective activity and distributed intelligence is the acknowledgement of the relevance of combining different perspectives on an object of communication, not only on the personal level, but also on the cultural level (in terms of different intellectual disciplines). Hence, these notions lead to elaboration of the educational concept in terms of multiperspectivity (see Roegholt, Wardekker, & van Oers, 1998). Here the guidance of the teacher is also indispensable, in order to guarantee this multidisciplinarity in the classroom as broadly as possible.

The *Developmental Education* approach tries to provide the means to the teachers, assistants, teacher-educators, and researchers to put this theoretical framework into

practice. The principles to be applied are derived from the Vygotskian framework and are mainly embodied in:

- a framework for *observing* children in their play activities (materialized in a manual that suggests several points for observation in the different areas of development and school learning; these include construction, reflection, communication, etc., but also more specific knowledge and operations with regard to these general activities, such as numerical and literacy abilities);
- a framework for *planning new activities* and actions for the children (see van Oers et al., 1996);
- a framework for *curriculum planning* (an inventory of different relevant activities that may be taken into account when constructing the curriculum; it must be noted that this inventory does not prescribe the order of the activities; this must be decided by the teacher on the basis of his/her observations of the needs and actual abilities of the child; *cf.* Janssen-Vos, 1997). The teachers acknowledge that their choice for the next step in interacting with children is never absolute, but always an hypothesis that can be refuted by future observations;
- examples of *exemplary practice* (descriptions in writing, or on video) that present principles like play, co-construction, and interactivity (both teacher-pupil and pupil-pupil) in a way that is assumed to be consistent with the background theory;
- In fact, all these principles are resources for the teacher in putting developmental education into practice (for further details, see van Oers, Janssen-Vos, Pompert, & Schiferli, 1996; van Oers, 1999a, b, 2012a; Janssen-Vos & van Oers, 1998).

This approach advocates *a play-based curriculum*, in which children and teachers are involved together in different personally meaningful play activities that emulate cultural activities, in which context the children can appropriate different cultural tools, and get assistance on the aspects they have not yet mastered. This idea has been elaborated for the lower grades of primary school in educative role-play activities, ánd for the upper grades in which pupils do research and imitate the roles of researchers. The *Basisontwikkeling* program was developed for this goal in the lower grades in primary school. A follow-up was constructed by van Oers (2009), and further elaborated and specified by (among others) Pompert & Koster (2017) and de Koning (2013).

In the following section of this article, we will discuss how teachers in this play-based curriculum in the Netherlands are assisted by teacher-educators. This *Developmental Education* (*Ontwikkelingsgericht Onderwijs* in Dutch) approach is currently adopted by about 10% of Dutch schools. A basic assumption is that authentic learning for *all* children in primary school (4–12 year olds) should start from their play activities, and it is only in such contexts that meaningful appropriation of cultural tools by children can be achieved. In such a context, even very abstract tools can be developed in young children (see van Oers & Wardekker, 1999; van Oers, 2012b; van Oers & Poland, 2012).

Given the aim of this article, we don't want to dwell too long on the descriptions of the program itself, but focus on the comparative questions of how teachers are assisted in adopting the respective teaching strategies. It is clear that this is a complex matter, as there are no prescribed directives that the teacher should follow, while at the same time the teacher has to conquer old habits of trying to direct the children toward the instructional goals. These "new" teachers have to observe children and react sensitively to them, play with them, look for moments of teaching and learning, and negotiate with them about available meanings in order to provoke them into making new knowledge (van Oers, 1999b). The person who provides the teachers with assistance in innovating of their teaching practice will be called here the **teacher's assistant** (translating both the French a*ccompagnateur* and the Dutch *nascholer*).

Results

The Activities of the Teacher's Assistant

Having described the different approaches and their principles, we will now focus on the basic question of how the innovators (teacher-educators) of the respective points of view present their views to teachers. We will present data from case-studies on how they help teachers to adopt their view for the improvement of their daily classroom practices (see also van Oers, 2000). One can easily imagine that both approaches advocate the idea of a reflective practitioner (Schön, 1987), and that they share the concern of how to help teachers to achieve this attitude. Our fundamental aspiration for beginning this comparative investigation was to find out more about this complex process by comparing the solutions chosen by the two approaches (a Piagetian and a Vygotskian one).

Methodologically, though, this is a complicated matter. For a variety of reasons, it wouldn't make sense to set up an investigation on the basis of a (quasi-) experimental design. Working in different cultures, it is difficult, if not impossible, to find valid descriptors of the starting conditions for both groups of pupils, teachers, teacher-assistants, and researchers. Moreover, the complexity of the whole process, since it is being organized from both the "French" and "Dutch" perspectives, prohibits a standardized and strictly prescriptive learning process of the teachers and teacher assistants. Any attempt to control the experimental conditions strictly according to some preset program of teacher guidance would indeed conform to the rigor of an experimental design, but at the same time essentially corrupt the co-constructive nature of the innovation process. Finally, there is also the problem of a control group: it is impossible to think of a control group that validly could be used for both conditions at the same time, given their different cultural backgrounds, histories, and ways of working, let alone the problem of deciding on which dependent variable the experimental and control conditions could be compared.

Instead of trying to follow a quasi-experimental design, we believed that it was more appropriate to conceive of the investigation as a form of cross-cultural comparison on the basis of ethnographic descriptions of both cultures, and to use a sample of paradigmatic cases that can illustrate the differences of the cultures with respect to the main research interest. This is what we shall try to do in the next section.

A preliminary remark might be of help here. The first problem to be solved was to try to understand what the names of the respective approaches to the education of teachers could mean. The term "guidance" as used in the Dutch project was immediately rejected by the French as being too directive. For them it sounded as if a person is leading the group of teachers to the goal of the education program. Rather, the French preferred to view the process as a teacher-assistant accompanying teachers to find for themselves the route toward the project goal which the assistant and the teachers have agreed on.

This was too open from the Dutch point of view. So here the first evidence of a difference between the two cultures showed up in the language each group used. Both approaches were obviously developmental projects (they had the aim of assisting teachers in their professional development), but the actual activities of the teacher-assistants seemed to be different, as expressed in the names of the respective endeavors as "accompaniment" (*accompagnement*) versus "guidance."

"Accompagnement" in the French project

In their long history of working from the perspective of the *Pédagogie interactive*, the people of the CRESAS team have firmly developed their conception of this pedagogical approach and the corresponding method of teacher accompaniment. Many projects have been completed in crèches (see Rayna, et al., 1991), primary schools (Hardy, 1999), and secondary schools (Hugon, 1999a). Due to the nature of the approach, it is clear that the actual course of learning in every new institution will be different. And due to different institutional constraints in primary and secondary school, the acceptance of the approach as a good way of innovating school and for solving practical problems also varies. In the context of this article, we will not dwell too long on the details of the differences in different contexts, but try to find a level of description that gives a general picture and can be illustrated by some concrete examples.

The best way of describing the core of the French project is as a variation on the description of the *Pédagogie interactive* we gave before: the basis of the whole process of accompaniment is the assistant's way of *arousing* the teacher's own thinking on a specific matter, *adjusting* to the proceedings of the teacher's thinking, *questioning* them in order to make the teachers reflect on their own practices, *observing* how the assistant's questions and provocations, as well as their own reflections, work on the teachers' thinking, and *adjusting again* to the new situation. And: always endorse the teachers' new ways of doing things.

In arguing for their approach, the CRESAS team always referred to the intrinsic relationship between the construction of innovative situations and research. So when they tried to encourage teachers to innovate their teaching practices, they thought it was very important to make clear that in fact the teachers are carrying out a "reasoned methodical experimentation' (*experimentation méthodique raisonnées*), which is actually an expression that Piaget (1948) used. Methodical experimentation basically refers to a process of changing a situation stepwise according to the needs of the situation itself (as conceived by the participants in that situation), and establishing the effects of these changes. An analysis and assessment of the new situation then calls for further changes and adjustments, etc. The process of formative accompaniment of

teachers is in essence a process of getting the teachers involved in this kind of experimentation for the improvement of their practices.The improvement of the teaching practices means, accordingly, that teachers try to get pupils deeply involved in their own methodical experimentation in order to construct new knowledge together.

To get teachers involved, it is equally important for a group to be constituted where the mutual relations are "equilibrated," that is to say, that the relationships in the group are essentially non-hierarchical and based on mutual trust. Hence, no power is to be exerted by anyone on the others but a "cognitive dialogue" is the basis for the actual course of development of the group and its members (Hugon, 1999b, 2000). This kind of equilibration of relations is considered an important condition for the free expression of ideas and constructions of all teacher-participants on the innovating team, as well as for the mutual reflection on the ideas. In these reflections different judgments (*décalages*) can manifest themselves, which creates further dialogue and a starting point for new innovations. Hence, in their work with the team, the assistants deliberately favor opposite opinions, confrontation, and critical evaluation of ideas and practical proposals.

This has important implications for the work of the assistant. According to this view, she or he should never intervene in a group's activity by imposing her/his personal vision. Instead, as Hugon writes, "the mandate is to let emerge in the group a collective representation that is sufficiently stable and shared, and that can be further formalized in the communicative process." (Hugon, 2000, p. 33).

In order to work this out in practice, the teacher-assistants work in different steps with the team. The first step is always, of course, the acquaintance process. Most often, the teachers are brought into contact with the CRESAS group via the director's or the inspectorate's wish to innovate the school's practices. Sometimes the CRESAS group also offers a proposal for accompaniment. Most of the time, however, the teachers do not know about the special perspective of the Cresas group, and thus might have completely different ideas about teaching, learning, and development.

The follow-up work with the teachers then is always to bring together the ideas and questions of the different partners in the process, and jointly analyze them in search of the shared principles that will be underpinning the innovation team's entire work. The activity of the teacher assistant at this stage is very delicate, because she or he is not allowed to present her/his point of view in an explicit and imposing way. On the other hand, the assistant should not participate disinterestedly. She/he should at least try by questioning and comments to raise the idea that in pedagogical situations in the classroom, it is important that all children are involved in the actions and reflections. The assistant also takes care that different aspects of the situations are taken into account (material organization of the situation, spatio-temporal organization, social relations, motivational, and cognitive).

With regard to all these aspects, analyses must be made, problems be raised, and eventually hypotheses about possible solutions be constructed. By so doing, the innovative team constructs a "protocol for pedagogical experimentation" that sums up a series of specific practical problems and possible practical solutions. In the weeks after the session, the teachers try out the solutions to the different problems in their classrooms and make notes, or sometimes even videorecordings, about their innovations.

This material is the basis for the next session where all the solutions and experiences will be reflected upon and compared. An ongoing analysis will produce new problems, new hypotheses, and new solutions for further research and practical innovation.

It stands to reason that this way of working is very demanding for the assistant. Although there are differences in the concrete results of the *Pédagogie interactive* in different school settings or levels, the following four principles may be considered applicable for all (Cohen, 2000):

1. *Accompagnement* must be addressed to groups of teachers and not to individual teachers;
2. The teachers' developmental process should be anchored on a concrete educational project (either an existing project or a project that was collaboratively created in the group);
3. New knowledge and practices should be constructed on the basis of the teachers' own evaluations of the new situations (*l'auto-evaluation régulatrice*); thus it is important that the teachers try out the new ideas in their own practice, and report and reflect on their experiences;
4. The final goal of the formative process for the teachers is their co-constructed appropriation of an interactional mode of education: hence the teachers must improve their ways of interactively learning together, as well as of stimulating pupils to learn interactively in their groups.

Two Case Studies

Pédagogie interactive in the classroom

The following episode taken from an interaction between a group of teachers and three assistants is illustrative of the way the teacher-assistants work in a session with teachers. The assistants were invited by the primary school to assist the teachers in the innovative process that they had started in order to promote more active learning by all pupils. This example illustrates how the assistants confront the teachers' frame of thought by asking specific questions which may raise the teachers' awareness of their own mode of thinking, as well as of the frame of reference of the assistants (the example is taken from Cohen et al., 2000).

The situation is the following. In the fourth session of a formative accompaniment the assistants and teachers are gathered in a plenary session where each subgroup has to present its findings from the previous period. One of the subgroups consists of two young teachers (Etienne and Antoine). They had analyzed a classroom activity of seven pupils in the sixth grade during a French lesson. In this lesson one of the discussions was about a stylistic rule that requires that one shouldn't repeat the same words too often in a written text. In the class one teacher had conducted the activity with the pupils, while the other had observed the children in their discussions about "repetitions."

First, Etiennne presented his work and interactions with these seven pupils during their discussion. Then Antoine presented his observations of a subgroup of three pupils and gave his analysis of the interactions. At the end of his commentary Antoine remarked that "there have been moments of real exchanges, when they didn't know what to do." As an example he described a spelling problem: how to write **mérité**, with one r or with two?

Table 1
The conversation between three assistants (A, F, and C)

Nr	Etienne[1]	Antoine	Assistants
1	(described the situation)		
2		(gave his comments and wants to give a second example) "there were questions by Jean, who didn't go as fast as Paul , about the repetitions; Paul showed some irritation: "one cannot change those" and he continued his work; Jean couldn't follow.	
3			[A] "what were the questions about?"
4		"about the repetitions"	
5			[A] "Jean didn't understand the notion of 'repetition' or what?"
6		"I shall give a very precise example. He had noticed four possessive adjectives 'ma'[2] and he asked if one could replace them; but Paul thought that the the rule was not applicable here. So he went on with his work, and Jean was a bit lost.	
7			[F] "this is very interesting, indeed"
8	"it's true that in that exercise for the improvement of their texts, I asked them to work at the same time on the spelling and the punctuation. For a pupil like Jean that was probably too much."		
9			[C] "Didn't Paul explain why 'ma' doesn't count as a repetition?"
10		"he said: 'this must not be replaced'...."	
11			[C] "the other did not ask why?"
12		"a leader can sometimes lead a group into mistakes." [the teacher here gives an example of a typical French grammatical problem]	

NOTES: General: The research and accompaniment was actually carried out by Arlette Cohen, Françoise Platone, and Christiane Montandou in a collaborative research project of INRP, Paris.
[1] The names of the teachers and pupils are pseudonyms
[2] "Ma" is the feminine form of the possessive adjective in French for 'my'.

Then Antoine attempted to give a second example. At this moment a discussion arose between the two teachers and the assistants in order to clarify the problem. This latter discussion is interesting, because it properly illustrates the interaction style of three assistants (A, F, and C). The conversation went like this (see *Table 1*).

Further comments can clarify this episode, especially with regard to the style of the assistants' contributions. The assistants were especially alert because Antoine had just given an observation about the interactions between the pupils. He said that the observations were made when the pupils were confronted with a problem. In the second example the attention of the assistants was drawn by the style of the interactions between the pupils and the teachers. By asking specific questions about it, the assistants cautiously focused the teachers' attention on this point.

The interactions among the pupils then took a special turn. The less expert child wanted to ask more questions about "repetitions." The more knowledgeable pupil, who had previously been named "the leader" by the group, didn't want to dwell on those questions. With a bit of irritation, he wanted to get rid of them by saying "we can't change that." Here the analysis becomes significant: the conceptual framework that usually dominates the teacher's thinking in such situations is to concentrate on the differences among the children: the leaders and non-leaders, the fast and slow learners, etc. In such situations, according to the CRESAS group's experience, the questions of the least expert pupil are usually not taken seriously. Antoine seems to demonstrate this cast of mind, because he doesn't take these questions seriously either.

One of the assistants, however, responds (from the framework of the *Pédagogie interactive*) to the situation, in an attempt to focus the teachers' attention on these questions. The assistant's reasons are not explicitly stated in the conversation, but they obviously have to do with her theoretical assumption that by taking these questions seriously, pupils might be encouraged to express their questions as clearly as possible. This might create an opportunity for reflection and constructive exchanges. That is why the assistant asks about the questions of the less expert child (see lines 3 and 5). As a result, it turns out (line 6) that the teacher had taken notice of the pupil's questions, but nevertheless hadn't included them in his previous expositions of the interactions.

The two other assistants second the first in drawing attention to this aspect of the interactions (see lines 7, 9, 11). They try to bring to the fore that it would have been interesting and worthwhile to focus the more knowledgeable pupil's attention on the questions of his peers, and encourage them to explain their points of view, reflect on the underlying linguistics, etc. But the assistants never explicitly express their point of view on this matter! In the actual classroom activity (*i.e.,* the events that were recorded and analyzed) the two teachers remained within their original mind sets (see lines 8 and 12), but the questions and the assistants' reactions to them resulted in the following:

- they revealed that it is useful for teachers in their interactions with children to take questions of the less expert child seriously; and
- they oriented the teachers to the concerns of all pupils.

These are only elements of the assistants' purposes, but the important thing is that they have been constructed solely by the teachers themselves. Of course, the CRESAS teacher-assistants know that one such experience will generally not be enough for a radical change of mind by the teachers. Other elements of the "old" theoretical framework must be reflected on. Additional exercises are needed. The example and analysis reported above, however, demonstrate how the assistants do their job of accompanying teachers in improving their teaching, not by imposing a new point of view upon them, but by asking questions that focus their attention on particular points, and form the starting point from which the teachers might be able to reconstruct the theory of the *Pédagogie interactive* themselves.

"Guided participation" in the Dutch project

In the Dutch project, the work with teachers always starts from their own requests for assistance in innovating their teaching activities and school curriculum (see de Koning, 2012; Pompert, 2012). Most of the time, it is the school's director who makes contact with the teacher-assistants on behalf of the whole team, or the majority of the team. The possibility of working with the whole team is one of the basic preconditions set by the teacher-assistants when they accept a job with a school. Most of the time the teachers already know a bit of the *Basisontwikkeling*-ideas from books, journals, and conferences, at least up to the level that enabled them to decide that this approach may fit into their school philosophy or future perspective. Hence, there is usually already a favorable climate in the school for accepting this approach, although this is often not true to the same extent for all members of the team. There is often resistance to overcome within the team: different voices struggle to be heard and be taken into account. Moreover, when the teachers realize how deeply this approach may affect their habits, it turns out that all teachers have moments of hesitation and of sticking to their old teaching habits, which often originated from a transmissive, depositing style of teaching and curriculum.

After the contact has been made, a first meeting is held with the team, in which the teachers explain their practical problems, ambitions, and queries. The main issue of the meeting is a reflection on the teachers' own problems in, or dissatisfactions with, their teaching practices. In conversations with the teachers, the directors of the school, and the teacher assistants, a preliminary plan is made regarding the things that the team as a whole wants to learn, or agrees on, concerning improvement of their practices. They can, for example, decide to improve their literacy education, or improve their ways of dealing with intercultural differences.

On the basis of their analysis of the outcome of that meeting, the assistants propose a plan of work for the whole year, based on the needs of the team and framed in terms of their own Vygotskian view. This plan is evaluated again by the director of the school. At this stage the director can decide to consult his team again, but often this doesn't seem to be necessary. Then a contract is made between the school and the teacher training institute for a year. The school pays for the work of the assistants from a budget for professionalization that they obtain from the government.

In the meeting between the teachers and the assistants, the teachers' own practices are always the starting points. These practices are analyzed in *group work* (plenary),

small groups (two to four teachers), or *dyadic analysis between assistant and teacher*. The aim of these interactions is to look at one's own teaching practice through an explicitly stated theoretical stance. The issues for discussion in the different sessions are always part of the teachers' own practices, concerns and interests, initially phrased in an open, undeveloped (*i.e.*, abstract) way. These issues were either proposed by the teachers themselves or proposed by the assistant on the basis of what was seen during class consultations. In all these cases, the assistant asks questions about the teachers' practices, or the teachers ask questions among themselves starting from this abstract issue. By so doing, these questions are theory-driven and as such, they focus on aspects of the teachers' practices that seem to be relevant from the point of view of developmental education. All participants in the conversation are encouraged to give their opinion about a particular topic, and the assistant also gives her/his point of view.

The subsequent discussion leads to the first concrete realizations ("answers") of the abstract idea. In terms of the jargon of the cultural-historical approach, the teachers and the assistant are *ascending from the abstract to the concrete* (see Davydov, 1972/1990; Falmange, 1995). In comparing the different concrete answers of the teachers and the assistant, a consensus about a possible practical solution to the problem at hand is sought. This result is most of the time a *co-production* of the teachers and the assistant. The result can be tried out concretely in the classroom practices of the teachers involved. The parts that cannot be filled in by the teachers themselves are suggested by the assistant. The final product is always and necessarily a product of distributed cognition, and to be so acknowledged with the consent of the teachers themselves.

A Case Study of guided participation

A typical example of how the assistant tries to influence the teachers' reflections might be seen in the excerpt below. The team of teachers is gathered in a school conference that is meant as a moment of reflection on their current teaching practices, and, of course, as a moment to promote learning from each other. In the activity described below, the teachers have received a questionnaire about their teaching style in their everyday practice. They have to fill out the questionnaire cooperatively, reflect on its questions, and try to find an answer that they personally find meaningful after having discussed the opinions and comments of the other teachers of the group.

At this stage, it was not necessary to find a consensual answer! Each teacher could give her/his own answer, but had to reflect on other possibilities and considerations first. The previous reflections and the personal answers that each teacher gives later on were, of course, the most important part of this activity. In one session the work of the teachers was recorded on video.The assistant discussed the conversations and points of views afterwards with the teachers.

In the episode we will describe, the teachers focussed on the questions "Do you regularly observe children in their activities?" and "Do you always support children on things that they cannot do on their own?". The teachers were asked to fill out this questionnaire by circling one of numbers 1 (= seldom, not so much) through 5 (= often, very much). The list was definitely not meant as an assessment of the teachers' teaching qualities, but just to give them useful objects for their discussion, related

to notions or principles that are theoretically interesting. It was the teachers' job to relate those questions to their practice, discuss the differences they noticed, and maybe find things they have in common, or things they want to learn more about.

The following episode illustrates the issue (see *Table 2*):

Table 2

Conversation between teachers A, B and C

Nr	Teacher A (upper grade)	Teacher B (lower grade)	Teacher C (lower grade)	COMMENTS
1	"...support children by participating in an activity, I mean really participating.....really..."			*teacher partly repeats aloud the question of the questionnaire*
2		very often		
3			Oh yes, sure, but I am reluctant to circle a 5	
4		not necessary, ...we just put 4		*teacher answers in the plural showing that they are really trying to find a shared answer; they circle a 4 on the questionnaire*
5	yes, but really playing with the children, like if the children...			
6		Oh no, I don't find that difficult		
7			no, I dare....I don't find that difficult; don't have any problem whatsoever with it	
8		in fact, I like it		
9			Yes, I like that too, but I only do it when the children, let's say, invite me	
10	Huh? Only on invitation?			
11		Oh no, sometimes I go sit close to the children playing		
12			sure, I also go and sit near the children playing.....	
13		....and then you become easily involved in the play.....		

The course of this piece of conversation demonstrates how various teachers dealt with the questions on the questionnaire and how they traced concrete differences among themselves. In this episode the teachers discovered that although everybody agrees on the abstract idea that participating in children's play is important, there are still differences as to how the teachers could (or: should?) get involved in the play activity. Teacher A, for example, makes a big deal about *really* participating in the play (presumably by adopting a role in the play, instead of just being there, showing interest and encouragement). He really tries to entice his colleagues to speak their hearts out. At the end of the episode he at least suggests the possibility that a teacher may take the initiative to participate herself, *not only when invited*. The other teachers seem to be a bit reluctant to do so. Teacher C doesn't seem to be eager to intrude herself into the play; teacher B actually offers herself as a playmate, and assumes that she will automatically be accepted as such by the children.

The discussion touches on a crucial element for the implementation of the *Developmental Education* concept as a play-based curriculum. It is about how teachers actively try to get engaged in children's play in a way that is acceptable and meaningful for the children. The discussion does not end here, but is followed up in the team discussion. It will probably not be settled in one meeting, but the object of discussion has definitely been created.

This episode demonstrates one of the strategies in the *Developmental Education* approach for negotiating theoretical ideas among assistant and teachers. Another strategy is based on the notion of "modeling" (which is different from mere copying behavior; see Tharp & Gallimore, 1988). During the *class consultation,* the assistant observes the teacher in her daily practice and makes notes about the teacher's activity for discussion afterwards. Sometimes a teacher asks for attention to problematic points in her/his own teaching, and the assistant then may decide to work with particular pupils in the classroom in order to create a paradigmatic case for possible activity that can be witnessed by the teacher. Sometimes this interaction is also videotaped. In any event, the interaction between the assistant and the pupil will be reflected on and discussed after the lessons. On all occasions, the main objective of the comments, models, and reflections is the articulation of the basic principles of *Developmental Education*, in order to provide the teacher with the tools that she/he can begin to explore alone in her/his own classroom practice.

Scenario "Peppino"

The assistant is working in a group that combines students from grades 5 and 6 (they are about 8-10 years old). The team at this school wants to implement the *Developmental Education* concept. Part of the assistance the team provides to help the teachers toward adopting the *Developmental education* concept is class consultation. The assistant (Bea) observes the teacher in her work and makes notes and video registrations about it for later reflection between them. Another class consultation strategy is the work of the assistant herself with the pupils, where she creates *"exemplary practice*" that can be discussed afterwards with the teacher.

The situation in the classroom is the following:

The class is doing a joint project on a circus called "Peppino." The children assumed there would be bears in this circus. As a consequence, they wanted to know more about bears. Some children are writing informational booklets about bears, in which they answer common questions (that they have collected beforehand), such as: how tall is a bear, how much does he weigh, etc.? Other children are writing a four-page story book about bears. One boy is not really involved in this activity; he hangs around a bit and does not know what to do. He chose to write a story about bears, but obviously doesn't know how to deal with this task. He has also problems with writing.

The assistant Bea decides to help this boy in order to provide the teacher with an exemplary practice and an object to reflect on. Assuming that this boy's major problem is how to organize this activity, she decides to help him by bringing structure into the activity. First she proposes to hear the story that the boy wants to tell, and then to write it down for him. She will take care of those parts of the activity that the boy obviously hasn't mastered yet.

In the episode below (see *Table 3*), we can follow one of the conversations of the teacher-assistant (Bea, co-author of this article) with the boy, and see how she helps him produce his own story:

Table 3

Conversations of the teacher-assistant with the boy

Nr	Bea	pupil	comments
1	(.....)	(.....)	*story making is already started; a few preliminary steps have been made; the pupil decided that the main character in the story should be called Bas. The pupil had decided the story should be about a boy Bas who went to an amusement park. They are currently in the middle of finalizing a sentence about where the boy and the bear went.*
2	"a house of a bear?"		*Bea writes down the phrase*
3		"of bears"	*boy uses the plural*
4	"of bears ?"		*Bea repeats and emphasizes the plural in a questioning voice*
5		"yes"	
6	"of bears"		*writes it on the piece of paper*
7		"and a bear came, who tried....was all the time chasing that kid.....and later he gave him a slap in the face"	
8	"and then he went home?"		

Nr	Bea	pupil	comments
9		"yes"	
10	"well, then we could write it down like....they go to the home of the bears, Bas is slapped in the face by another bear and wants to go home"		Bea revoices
11		"yeah, could be"	
12	"yes? Do you think this is it?"		
13		"yes"	
14	"otherwise we might get too much text on page 4"		
15		[boy nods]	
16	"...they go to the house of the bears...."		Bea rereads part of the story she has written down
17	"or maybe we better put this sentence on page three: 'the bear says there is much danger here ?"		
18		"Yes"	
19	"It is probably much better that we put this sentence...that we put it on page three"		
20		"There you have to draw a line"	*boy suggest a way of separating page 3 and 4*
21	"like this?"		Bea draws the line
22	"and then we do page 4 here, eh...."		
23		"and he gets a slap in the face..."	
24	"yes: 'he gets a slap in the face.....he gets a slap in the face and wants to go home"		Bea first writes the sentence down and then reads it aloud again
25		"yes"	
26	"and what to do in the end..... for you said in the beginning that we have to make it a bit exciting, like was it a dream or not?"		
27		hmm	*(nodding yes)*
28	"he gets a slap in the face and wants to go home"		

Nr	Bea	pupil	comments
29		"he says...."	
30	"well, how are we ending the story?"		
31		"eh... his mother just arrived and he was just lying in bed"	
32	"yes, and does he say something to his mother or does his mother say something?"		
33		"yes, he says: 'Mom, I am super-tired'	
34	O yes, that is nice, ..."		
35	" gets a slap in the face and wants to go home..."		Bea reads again the part of the story they just made up
36	"Bas is going to sleep"		Bea writes this down this sentence (not invented by the boy, nor explicitly approved)
37		"his..."	
38	"when his mother comes he says, 'mom, I am super tired'		
39		"yes"	
40	"Well, I find this a beautiful ending of the story. Now read it again from the beginning, that is to say, page one, page two, page three, page four, and look if this is what you had in mind"		Bea points to the pages 1,2,3,4

In this interaction the assistant gives a concrete example of how the general idea of scaffolding a pupil's activity (in a way that will make sense to both the pupil and the teacher) can be concretized in an interaction between this pupil and an adult. The assistant avoids the traditional IRE-structure by, for example, giving the pupil opportunities to evaluate and to initiate. The purpose of producing this "model" is to produce theory-driven input for discussions with the teacher, in order to contrast her way of interacting with that of another person (in this case, the assistant's). The episode is videotaped for use at a later moment in a reflective discussion with the teacher. Further analysis here may elucidate what could be learned from this episode.

First of all, it is evident that the assistant actually takes care of a considerable part of the conversation. The theoretical notion of distributed cognition supports this strategy by holding that different resources can be used in a situation, and that it is not of primary importance who provides which resource. The important point is

whether all participants finally can accept the product as their own. In this case, the boy finally writes his own story, which provides him the opportunity to take part in the class activity and add his product to the common pool of stories and booklets.

One of the assistant's strategies is obviously to use questioning to encourage the boy to produce ideas for the story (see lines 8; 26; 30; 32). In the interactions, the assistant keenly follows the boy's suggestions (see lines 3-5; 21; 32; 38), but the assistant also explicitly adds new elements to those suggestions by presenting possible ways of phrasing them (e.*g*., lines 10; 38), suggesting editorial possibilities (lines 19-22), or even suggesting new lines (not uttered by the boy himself) to make the story more coherent (line 36). All these examples show that the assistant is taking responsibility for the quality of the final product, and collaborating with the boy as a real companion, not much differently than peers would do, or what adults would do together. The assistant not only does not wait for the child's suggestions, but takes a distinct co-productive role in the interaction. Equally important is that the assistant very carefully asks for constant evaluations from the boy (lines 8; 12; 21), and that the boy constantly approves of the developments in the story.

One of the techniques the assistant employs is the technique of "*revoicing*," *i.e*., summarizing the boy's expressions, often making changes through correcting mistakes, completing an idea, or making it more clear or more conventional in terms of public speech. It is clear that the assistant primarily wants to get the ideas out of the boy while she puts them into written form for him. In previous activities this has proven to be a difficult demand on this boy. The assistant gives both the boy and the teacher models they could try to integrate into their own future practice. The boy could see how one tries to get one's ideas clear first, how one uses a work sheet, and how one could try to make details clear. He can also observe the importance of constant rereading for drafting a story. The teacher can learn that it is important to assist children on those parts that they do not seem to have mastered yet, and how she can — and is allowed to! –introduce new elements into the interaction, which can be objects of a joint evaluation and thus can be integrated in the production of the shared end product.

The episode demonstrates how the assistant is constantly trying to get the boy involved in the story-making process. In the first version of the story, she lends the boy a hand by taking responsibility for writing down the story. The final version of the story, however, is written in the boy's hand writing, and it evolves as a real co-production that the boy is proud to present to the class community later on. Nevertheless, the assistant must always be very careful not to pressure the child too much. There were two moments in the episode (see lines 29 and 37) when the boy was starting a sentence that apparently was overruled by the assistant (a phenomenon that is not uncommon in all kinds of peer-conversations). We will never know what the boy intended to say at those moments, although from other situations (under similar conditions) we know that when it is really important, the child will certainly try again to express his thought and get his voice heard. But we don't know for sure in this case. Nevertheless, the boy appeared to be very happy with the final version of this story, which we take as a sign that the assistant's suggestions and utterances were not taken by the child as impositions, but as valuable contributions to their shared narrative.

In the discussion between teacher and assistant about this episode, these principles of encouraging, contributing, revoicing, and asking evaluations are again articulated for the teacher. After that, the teacher can try to use these ideas herself in her own daily practice, and at a later stage the assistant can come back to see how the teacher is doing, and how she integrated these elements (if at all) in her own teaching. Then a renewed reflection is possible on these innovative practices. Discussion of these principles with colleagues is also very important at this stage. Of course, it takes more reflection and trials to really appropriate these new practices. Finally, the teacher's innovative practice will be a genuine co-production (analoguously with the boy) of this teacher, her colleagues, and the assistant. What's important here is not primarily who contributed what, but that the innovated concrete result of the practice is accepted as meaningful by all participants in the innovative process.

Comparing the Approaches

Comparison of the different ways of assisting teachers turned out to be difficult and demanding for all partners in this comparative research process, not only because of the different national languages involved (French, Dutch, and English), but also as a consequence of the different theoretical languages. Hence, serious efforts had to be invested in understanding each others' points of view. In the discussions on the comparison, it turned out that cultural differences between France and the Netherlands couldn't be completely ignored.

The institutionalized systems of innovation in the different countries, for instance, are different. In the Netherlands there is an elaborate system that separates research, school innovations, training, and consultations. In France these different functions are more integrated, and certainly in the case of the CRESAS team, the functions of researcher and *accompagnement* were combined in the same person. This may complicate the interpretations of the assistant's activity in the Dutch case, since she never had "research" as her major interest, while the French a*ccompagnateurs* understood their interventions more directly as both attempts to improve practice and experimental interventions. These differences can be interpreted as consequences of the different historical developments of the institutions in both countries, but they might also reveal interesting issues regarding their views on the relationship between theory and practice.

Another cultural difference between the countries which is probably even more important for this comparative research is the difference in the circumstances of the two projects. The schools in the Netherlands which were involved in a process of implementing *Developmental Education*, had all chosen this concept on their own initiative. The schools more or less knew the concept and had by themselves decided that they wanted to adopt this view for the innovation of their daily practice and curriculum. In the French situation, however, schools had signalled a problem in their practice and either started looking for help in general, or were advised to ask for help from the CRESAS team. In either case, the French schools did not know very much about the specific theoretical orientation of the CRESAS team. It is possible that the CRESAS team simply had to be cautious about introducing their vision too fast or

explicitly. Whatever may be the case, it is evident that the CRESAS philosophy makes them "naturally" quite reluctant to impose their view on the teams; on the other hand, the situation presumably would have been quite different if the schools had from the beginning asked for assistance in the implementation of *Pédagogie interactive*.

Despite these cultural differences, both groups did agree on the intrinsic relationships between theory and practice: theory can never be separated from practice (every theory entails a view on practice as well), nor can practice be divorced from theory (every practice is based on a theoretical point of view). In the course of our discussions it became more and more clear that the main points for analysis and comparison were primarily of a paradigmatic character. So, basically, we viewed our investigation as a comparison between a Vygotskian approach and a Piagetian approach, although, as we tried to explain in sections one and two, both approaches should not be taken as orthodox explanations of the old masters (*i.e.*, Piaget vs. Vygotsky). Both have undergone considerable evolution over the past decades, which brought them closer and closer together, such that the differences may sometimes look very subtle.

The Piagetian approach of the CRESAS group has definitely accepted the idea of the essential relevance of the adult for a child's development, while the Vygotskians have definitely become more explicit in valuing the importance of the children's own contributions to their development. In both of the examples of teacher assistance that we described here, this can be seen in the acknowledgement of the importance of the adult's role for the children's activities, and in the attention given to the children's thinking, both in cooperation with adults and with peers. The belief that pedagogical professionalization of the adult is an essential contribution to childrens' development is one of the strongest assumptions in both approaches. Actually, one could say that this precise insight and the wish to enrich our understanding of this process underlies the present research.

But this process might still be interpreted as just an historical process of mutual adaptation. There are, however, essential communalities that have influenced the process of teacher assistance, as this article hopefully has made clear. We have referred to the constructivist and interactional assumptions that advocate a view of pupils as subjects in the teaching process, rather than objects of teaching. Moreover, both approaches recognize the relevance for pupils of working in heterogeneous groups, in order to optimize multiperspectivity and create optimal conditions for dialogue. Finally, both approaches share the conviction that if all these assumptions are valid for the organization of pupils' learning, they must be valid for all pupils and teachers as well. The assumption of parallelism between pupils' and teachers' learning was a fundamental starting point for both approaches we compared here.

These communalities are very important for the mutual exchange between the approaches, for no communication would be possible if there were nothing in common. We think nevertheless that there are also differences that are not superficial divergences of meaning. We focus on three pertinent ones that surfaced in our comparative research:

- **the role of the assistant:** The first reaction of the French team to the assistant giving a model of exemplary practice was one of resistance. They found this intervention too directive and were afraid that this would act as an imposition

on the teacher's learning process. On the other hand, the role of the French assistants was interpreted by the Dutch researchers as clearly present, but reflecting too much of a wait-and-see style. The French team asserts that they do not give explicit models of successful *Pédagogie interactive*. However, according to the Vygotskian view, their style of questioning can be interpreted as a model in that will be interiorized in due time by the partners in the learning process. So there is also modeling in this approach, although practiced in a covert way.

Another difference on the activity of the assistant pertained to her/his focus. The French approach dictates that the assistant should in principle only be oriented to the activities of a small group and try to stimulate the participants' interactions; the Dutch assistant, however, can — in addition to participating in a group's joint activity — also work with individual pupils (as in the Peppino example above). From the French perspective, these dyadic interactions between an adult and an individual child should not, or rarely, be practiced.

- **subject *of* the learning process, or subject *in* the learning process:** Although there is a great deal of agreement that pupils should be considered as subjects *in* the teaching process, a second look may reveal a slight but significant difference. When we look at the pupil's relationship to the learning activity, we see that the Piagetians tend to see the pupils as subjects **of** the learning activity, while the Vygotskians rather see them as a subject **in** a learning activity, together with teacher or peers. This seemingly minor difference turns out to assume enormous dimensions upon deeper reflection on the meaning of both expressions. In the former case, we talk about individual learning activity that, according to the French approach, can only be accomplished in a social context which includes both adults ánd peers. In the latter case, we talk about a basically sociocultural learning activity, that — according to the Vygotskian approach — is created by different individual and interacting contributors, both adults and peers. This latter viewpoint is consistent with the idea of distributed intelligence. The people advocating *Pédagogie interactive* prefer the term "collective intelligence" (or maybe Wallon's expression "situational intelligence" — *intelligence des situations* is applicable here as well), suggesting that the intelligence is located in what is collected and shared in a situation by interacting individuals. This interpretation of distributed intelligence is precisely the rationale for the assistant's duty to bring to the situation the sociohistorical knowledge that the pupils themselves do not yet possess.
- **from abstract to concrete, or from concrete to abstract?** Finally, both groups evidently differed in the choice of starting points for the learning processes with the teachers. If we understand the abstract (in line with the dialectical logic behind the Vygotskian theory; see, for example, Ilyenkov, 1983) as an undeveloped, one-sided representation, while the concrete is the maximally developed representation combining all possible aspects into one whole (the so-called "unity of the manifold"), then we can say that the assistant in the Vygotskian orientation starts from the abstract, from which the

teacher can ascend to the concrete living reality in their classrooms. That is clear, for instance, in the episode of the discussion with the teacher, but also in the model given to the teacher (see Peppino example), which is just an undeveloped, rough example that has to be filled in by the teacher herself in her own concrete practice. The assistants following the *Pédagogie interactive* approach, however, advocate starting in the concrete, with a living example of an everyday practice (see example above) that is commented on by all participants who, by so doing, reveal all the dimensions of that reality (this is really a unity of the manifold). It is through such concrete examples that the participants are supposed to develop a more abstract and general understanding that may guide their future interactions with pupils in different concrete situations.

Understandably, these points constitute unending quests between both approaches, regarding their respective theoretical assumptions, implementations and outcomes, both at the level of teachers and pupils. In the discussions on these issues, it was remarkable that the notions of "equilibration," power, asymmetry, and status differences frequently came to the fore. It is probably this issue that both groups basically are struggling with: while acknowledging the teacher as a public intellectual, how can she or he organize the activity in such a way that his or her cultural advancements don't turn out to overpower the pupils, leading to alienation and reproduction of differences, rather than to the distribution of power to all participants for the benefit of all? The problem of empowering pupils in the school curriculum is still not solved, but the question is there, and that is a start. An ongoing dialogue between different views on this issue (such as a Piagetian and a Vygotskian view) might reveal ways of taking pupils' understandings seriously, while at the same time pointing to how adults can play their roles as public intellectuals, handing out cultural knowledge and skills for the benefit of all, and thus achieve some of the unaccomplished ideals of the age of the child.

Conclusion

When comparing two different approaches to curriculum innovation (a Piagetian one and a Vygotskian one), we see that these approaches share important principles. They both focus on pupils' activities and on interactions among pupils and teachers. Close observation also reveals important differences between the approaches, based on the theoretical frameworks each approach starts from, and particularly regarding their views on the extent of guidance required by the teacher-educator.

When innovating curricula for the future, it is important to provide pupils and teachers with up-to-date knowledge, skills, and attitudes. Therefore, both teachers and pupils should be guided by more knowledgeable others (knowing both the new content and the theoretical background) who take responsibility for the promotion of development in a meaningful way. The teachers need assistance from a teacher-educator; the pupils need stimulating support from their teacher.

Finally, it should be emphasized that the CRESAS group which participated in our research should not be seen as representing all Piagetians. There are many differ-

ent types of Piagetian researchers and curriculum developers. Take those who insist on following a strict developmental pattern for cognitive micro-developments. The CRESAS group does not take this latter issue as a starting point. A similar warning should be expressed with regard to the *Developmental Education* program and its interpretation of Vygotskian theory.

Further in-group research should be planned in the future in order to discover the power of each paradigm for the innovation of school practices, particularly using both individual pupils' or teachers' points of view, ánd at the same time providing culturally valued achievements for the promotion of development in both pupils and teacher. Thoughtful assistance of teachers who intend to innovate their curricula and practices in the classroom is a quintessential precondition for success.

Ethics Statement

The participation of teachers and researchers in this research was accomplished with consent of all parties. Names of pupils are anonymised.

Author Contributions

Both authors participated in the comparative project with the French colleagues, made observations and collected the data. The first author drafted the first version of the article. The second author described the excerpts from the Dutch project. Both authors discussed, the results and contributed to the final version of the manuscript.

Conflict of Interest

The authors declare no conflict of interest.

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