

# Harmony and disharmony in an educational reform concert towards a Parsons' inspired dynamic model of tuning

THÉRÈSE CARPAY, JOHAN LUTTENBERG, WIEL VEUGELERS and JULES PIETERS

In large-scale educational reforms, many actors play their roles. The diversity of contributions and lack of harmonization prove to be frequently found to cause educational reform failures. Many explanations for these failures focus on differences between the actors and on differences in their contributions to the reform process. In this article, we examine the effects of these differences and emphasize on the need to harmonize these contributions to the reform process. Contributions by several actors to a large-scale curriculum reform undertaken in the Netherlands in the 1990s are mapped for this purpose. This curriculum reform is part of a larger educational reform aimed to introduce a constructivist approach. Education is conceptualised as a social system, and educational reform as the manner in which this social system adapts to immanent and emmanent changes. The actors in the education system are distributed across functional subsystems. In the present analyses, teacher acting within a particular subsystem stands central. The results show adequate exchange and harmonization of the contributions from the different subsystems to be a necessary condition for successful educational reform. To achieve a good exchange and harmonization, the use of an Educational Impact Assessment is recommended.

**Keywords:** educational reform; curriculum reform; social system; adaptation; integration; exchanges

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## Introduction

The complexity of educational reform is caused by—among other things—the many parties involved. In itself, the involvement of many parties in educational reform is essential because such involvement is a necessary condition for success. At the same time, however, the diversity of the parties may constitute a threat to the consistency and continuity of educational reform. Understanding the contributions of the different parties and just how they interact is thus critical for successful educational reform.

In this article, we examine the contributions of parties as government, schools, teachers and educational organizations to the reform of the curriculum and the learning environment in upper secondary education undertaken in the Netherlands in the 1990s. Just how the parties interact and where their interaction leads are then examined using an analytic model which we developed on the basis of Parsons' functional analysis of social systems (Parsons 1959). As will be shown, the model allows us to map the contributions of different parties and thereby gain insight into the degree of functional coherence for a large-scale educational reform. And, this means that such a model may be fruitful for the analysis, development and implementation of future reforms.

## Theory

In studies which address the contributions of the different parties involved in large-scale reform efforts, the emphasis is often on the differences between the parties and their contributions. In some articles, the emphasis is on the role of the separate parties. Teachers are often considered to shape an educational innovation in their own way (Spillane 1999, Spillane *et al.* 2002). Just how teachers shape the innovation, relates to variables as personal identity (Day *et al.* 2007), 'good sense' (Gitlin and Margonis 1995) and core morals (Sockett 1993). Schools are proven to work more or less autonomously and to shape an educational reform depending on the school culture and management style (Hargreaves and Shirley 2009, MacDonald 2003, Veugelers 2004). Often, the initiator of the reform, the government, is more or less reluctant to contribute or serves a more or less centralizing function (Karlsen 2000).

Differences in the contributions of the many parties involved in a large-scale reform are sometimes placed within a broader context. This broader context may be the difference between the existing dominant educational practice and the new but not yet dominant educational practice, the differences between the time scales of the schools and government and differences between the time scales of the schools and the inventors of the reform. Timperley and Parr (2005) identify a theory competition between initiators and implementers of the reform. Differences in beliefs and values, knowledge and skills and intended outcomes lead to different interpretations of the frames of reference of an educational reform and lead to other contributions than originally intended. Schools are part of different communities of practice and may, therefore, have

different values, standards and objectives which give rise to very different reform contributions. Fernandez *et al.* (2008) have shown how an invisible screen divides the designers of a reform from the implementers and places the two parties in separate communities of practice, each with their own contexts. This invisible screen is then proven to be responsible for large differences in the final contributions of the parties to a reform.

Studies on the influence of different contributions to the progress of educational reform often do not emphasize the differences themselves, but the interactions involved. For example, Goodson (2005) shows that by changing the conditions of educational reform the contributions, even when they are in line with the original plan, in the end can turn out differently than intended. Ongoing changes in the understanding of reforms and the local and national school context also influences the interpretation and implementation of educational reform. Shifts in the relations between internal and external change forces have unintended consequences for teachers and school leaders (Au 2011, Fink 2003, Kirk and MacDonald 2010). All of this means that the most important effects of the contributions on the educational reform can only be identified when the interaction between the parties involved and the broader context of the reform are taken into consideration. In a web of interdependent processes, changes in one part of the reform system can affect other parts of the system but often in unpredictable ways (Hubbard *et al.* 2006). As a result, differences in the contributions of parties involved in reform may *not* always stem from pre-existing differences but arise in the educational reform process. Such polymorphism shows educational reform to be a complex social process. Educational reform is part of the ongoing social interaction between culture, structure and agency. Final reform results depend on how different parties in their interaction will support or oppose each other. Educational reform must thus be viewed from a system perspective to detect the complete pattern of all elements involved (Fink 2003). Educational reform implies change of system and of social interaction within and between systems. It must be viewed as social interaction and part of an education system which—itself—is open, dynamic, complex, adaptive and more than the sum of its parts (Morrison 2005). The education system has its own dynamic. And, similarly, the educational reform has its own dynamic which can often be influenced to only a very limited extent. Rather than to focus on planned contributions and predicted outcomes, it is better to concentrate on the course of the interaction between the components of the system and from there make choices, set priorities and strive for harmony between the contributions (Hargreaves and Fullan 2009). The *interaction* between the components of the education system thus becomes the unit of analysis for understanding the reform process.

### **To a dynamic exchange and tuning model**

To understand the dynamics of the interaction between the components of the education system when confronted with a large-scale reform, we

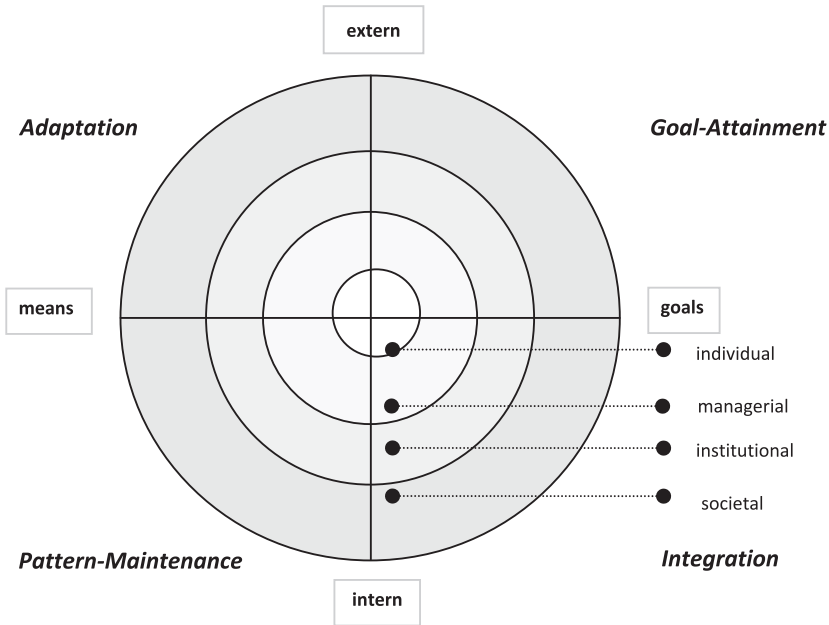
developed an analytic model by which we can map the actors, their functions, their actions and their interrelations. The model was designed to enable the comparison of the realization of the innovations as desired by the inventors and predicted by policy-makers, with the innovations as have been established in practice. The model should make predictions of the educational reality by policy-makers controllable after the introduction of the innovations. It has not the intention to test the theory empirically but provides scenarios to which the educational reality can be tested.

The model is largely based on Parsons' action theory (1959). Parsons' action theory assumes that system and action are inseparable, or that action is only possible as a system (Luhmann and Baecker 2008). It is this combination of acting and system thinking that makes Parsons' theory attractive to analyse education and educational reform. System thinking responds to the complexity of education and acting does justice to its dynamic nature. The basic assumption of the theory that social systems always strive for a balance, gives the impression that they are largely static and, therefore, not suited to analyse educational reform. This objection is put aside by Ellemers (1977). He argues that in Parsons' theory, social systems should be construed as dynamic systems due to ongoing disturbances in the exchange of media between the subsystems needed to carry out the various functions of the system. Social systems are action systems in which decisions are made in order to achieve particular goals, based on developments elsewhere. New experiences can be incorporated into the acting. Structural changes, such as differentiation and integration, alter the dynamics between the subsystems and the nature of the system. The result may be changes in existing relations with surrounding systems and thus lead to extensive transformations.

The analytic model shows educational reform—in light of its own dynamics and the dynamics of the surrounding education system—to be partly unpredictable but *not* uncontrollable. That is, when education is conceptualised as a social system and educational reform as the striving of this system to maintain an equilibrium under changing circumstances, the need to create coherence via sufficient coordination of the respective components will become apparent.

According to Parsons, a social system can be divided into the dimensions of internal vs. external and means vs. ends. These dimensions define four subsystems or functional problems which every social system confronts at times: adaptation, goal-attainment, integration and pattern-maintenance (see figure 1). The subsystems may, in themselves, be seen as distinct social systems, divided in four function areas. Each subsystem of these social systems may be seen as a social system as well and can also be divided in four function areas and so on.

Within the four areas of functioning, four levels of organization can be distinguished: the primary (individual) level, the managerial level, the institutional level and the societal level. While a particular subsystem may be organized at all four levels, one level of organization will typically predominate within a given subsystem. For example, in the integration subsystem, the primary level of organization typically predominates with individual teachers, pupils and parents as key actors in the social system. In the



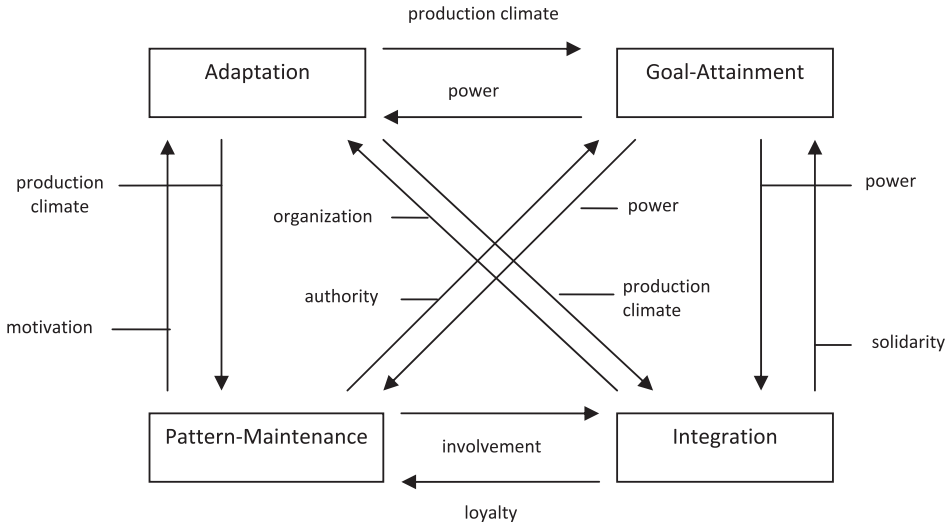
**Figure 1. Education as a social system.**

pattern-maintenance subsystem, the managerial level typically predominates with the schools, school directorates and educational support institutions as key actors. In the adaptation subsystem, the institutional level predominates with the boards of associations and organizations in the field of education. In the goal-attainment subsystem, the societal level of organization plays a critical role in the determination and realization of—both internal and external—collective goals. The most important actors under such circumstances are politicians and government officials.

According to Baum (1976), social systems are dynamic systems, because a permanent exchange of media between the various subsystems is needed to solve the functional problems. In the case of society as a social system, the exchanges of media between the four subsystems are developed by Parsons as an input–output diagram. In the tradition of Rocher (1978), a simplified version of this diagram is presented in figure 2.

The figure depicts the exchanges of media (products and services) between the subsystems. For education, the exchanges can be worked out as follows:

For the adaptation subsystem, a good production climate functions as a medium of exchange with the other subsystems. Hence, the actors in the subsystem adaptation mobilize resources and develop both activities to adapt the education to the requirements and limitations of the context and activities to mobilize the context for the needs of education. For the pattern-maintenance subsystem, a good production climate means a good working climate and thus calm within the school organization. For the integration subsystem, a good production climate can mean that the subsystem adaptation creates conditions for the flexibility in education needed to meet the diversity in society. Dominant actors in the adaptation



**Figure 2. Media exchanges between subsystems.**

subsystem are education administrators, publishers and the administrators of organizations of teachers and parents. From the goal-attainment subsystem, the adaptation subsystem receives power in the form of finances and other facilities and useful legislation. The integration subsystem takes good care of the workplace (i.e. organization). And, in exchange for a good production climate, the pattern-maintenance subsystem provides good and motivated employees.

The goal-attainment subsystem determines goals and standards. It designs policy to attain goals and distributes funds and manpower to reach these goals and check the results. The medium of exchange of the goal-attainment subsystem is power. In return for power, the integration subsystem contributes solidarity not only from, especially, teachers but also from the parents and pupils. The pattern-maintenance subsystem (the school organization) contributes authority and the adaptation subsystem provides a good production climate. Goals can be both external and internal. External goals concern the smooth functioning of (components of) society, internal goals concern education system itself—for example, the role of the pupil and the educational inspectorate. The government is the dominant actor in this subsystem.

The integration subsystem identifies the components of the education system to be sufficiently coordinated, resulting in smooth processes. This involves the coordination of daily workplace routines, agreement on rules and how to maintain adherence to them. The distribution of responsibility must also be clear. To avoid conflicts, good relationships—not only among teachers but also among pupils and between teachers and pupils—require a lot of attention. Mutual support and other things that make life liveable for pupils and teachers must be present. As mentioned above, the goal-attainment subsystem is given solidarity and policy support in exchange for power by the integration subsystem. The pattern-maintenance subsystem receives loyalty to educational values from

the integration subsystem. For the adaptation subsystem, the integration subsystem takes care of a good organization on the workplace. The dominant actors in the subsystem integration are teachers, pupils and parents.

Using socialization processes and culture transfer, the pattern-maintenance subsystem guarantees continuity and homogeneity of values and value orientations of teachers, pupils and other actors directly involved in education. The actors in the pattern-maintenance subsystem (e.g. school managers, teacher trainers and educationalists) show their involvement in education at the level of the classroom by supporting teachers, parents and pupils. By socialization school managers take care of legalization of the authority of education policy-makers. In turn, the adaptation subsystem provides good employment conditions and thus motivated employees for the pattern-maintenance subsystem.

For education to function well, all of the above exchanges are important and necessary. According to Baum (1976), however, exchanges between the diagonally opposite subsystems (i.e. those between goal-attainment and pattern-maintenance and those between adaptation and integration) play a particularly integrative role. In these exchanges, not only internal vs. external interests but also means vs. ends must be aligned. In the exchange between goal-attainment and pattern-maintenance, for example, general guidelines are needed for the system to achieve the goals. Guidelines serve to stabilize by generalization. In contrast, in the exchange between adaptation and integration, guidelines must be tailored to the specific characteristics of a complex and changing social situation: complexification by specification. The influences of the diagonal tendencies, considered on their own, are diametrical. Operating together, however, they maintain a balance within the system.

That is why the model proposed here provides not only an overview of the media exchanges between the subsystems but also shows the dynamics specific to education as a social system and educational reform as one way in which the education system maintains itself within the broader societal context. The diagonal interactions are crucial because—despite their opposite effects—they work to maintain a balance between self-preservation and change.

## **Method**

### *Casus*

The model outlined here was used to analyse the development of large-scale secondary educational reforms undertaken in the Netherlands in the 1990s and, in particular, the introduction of constructivist approach to secondary school instruction which took the form of a so-called 'study house'. The introduction of constructivist approach, together with the new examination programmes which facilitated the study house, was in fact a national curriculum reform serving a long-desired educational reform. In the underlying study, the study house was analysed not only as

a component of the educational system but also as a system itself. For Capra (1996: 46), this ability to focus attention on different system levels is a central feature of system thinking.

Many of the reform elements were largely administrative and, therefore, applied to the education system as a whole. Expansion of the scale of schools and deregulation of policy were principal among these. In secondary education, in particular, the reforms led to—among other things—the obligatory publication of achievement results for every school and a changed role for the educational inspectorate. The reforms also led to larger middle managements and increased bureaucracy for schools. School management also started asking teachers to conform to a particular method of instruction and manner of organizing the school. In the eyes of the individual teachers, however, this meant less autonomy for themselves and greater steering by the school.

Other elements of the reforms concerned the instructional process itself and applied to the upper grades of secondary education in particular. A new—obligatory—national curriculum for upper secondary education was implemented. To complement this curriculum, constructivist methods of instruction were introduced. Characteristic of the new national curriculum was the introduction of four streams, so-called ‘profiles’. Besides 14 obligatory subjects, every student should, from now on, take some subjects in his final exams that are specific to the profile he had chosen. For all of the obligatory subjects, moreover, a new final examination programme was implemented. This new examination programme was much more extensive, difficult and detailed than the previous one. The aim of the introduction of a constructivist approach to teaching and learning was to promote independence and responsibility on the part of pupils. However, the adoption of a constructivist approach was optional for schools and pupil independence and responsibility have only been attained to a limited extent. The emphasis in most of the constructivist approaches adopted in the schools was on self-regulated learning, the planning of one’s own study behaviour and working independently. In order to enable such independent learning, the number of lessons taught by the teacher and the extent of whole class teaching was reduced. Subject teachers were expected to coach pupils and monitor both their study behaviour and progress during independent study lessons instead.

The analyses reported on here are part of a larger study of the development and implementation of the secondary educational reforms described here and where things went wrong (Carpay 2010, Luttenberg *et al.* 2012). Reason for the study was the observation, as well in public opinion, in politics as in education itself that many elements of the educational reforms have failed. Teachers were given insufficient support to help them internalize new methods of teaching, and the reduction of their autonomy left them with too little room to practice with the new methods. The exchanges which were necessary between the many parties involved in the reforms were – at best – poorly organized and – at worst – broke down altogether. The purpose of the analyses undertaken here was to better understand not only just where and why the exchanges between



the parties involved in the reforms went wrong but also where and how things can possibly be improved for the future. The following research questions were formulated:

- (1) What media exchanges appeared to be important for the teachers during the introduction and implementation of the constructivist approach to teaching and learning?
- (2) How did the exchanges proceed?
- (3) What was the influence of the exchanges on the acting of the teachers?

### *Data*

In order to answer our research questions, we drew upon primarily Dutch parliamentary research (Commissie Parlementair Onderzoek Onderwijsvernieuwingen [Parliamentary Research Commission Educational Reform] 2008a). A Parliamentary Research Commission was appointed to address the partial but major failure of the secondary educational reforms and societal concern about the quality of education in the Netherlands in general. An important part of the commission's work was to publicly interrogate those individuals who played a significant role in the preparation of the educational reforms and in the decision-making (Commissie Parlementair Onderzoek Onderwijsvernieuwingen [Parliamentary Research Commission Educational Reform] 2008b, 2008c). For our analyses, we selected those 30 interviews which explicitly addressed the preparation and decision-making for the relevant educational reforms during the public hearing. In addition, we drew upon material from interviews previously conducted with the most important individuals involved. These interviews were part of an earlier study of the introduction of the new constructivist approach to teaching and learning in secondary education (Knoppert and Cornelisse 2000). The choice to use qualitative content analysis is motivated by the feature of qualitative content analysis to produce descriptive data to enable interpretative data analysis. Qualitative content analysis distinguishes itself from content analysis in focusing on interpretation (Pleijter 2006). The use of interviews in order to produce data can be substantiated by the system theory of Luhmann (1985). Like Parsons, Luhmann combines system and action. He understands communication as the basic process of social systems that produces actions as elements of social systems.

### *Analysis*

The analysis occurred in phases. In the first phase, texts were segmented. Any piece of interviews in which a meaningful statement was made about the case at hand was treated as a segment. Each segment was then coded as pertaining to one of the four functional subsystems in our model of education as a social system. This produced four working files with statements pertaining to each of the four subsystems (i.e. functional domains),

and these files thus provided information on the course of events within the different domains.

In the second phase, an analysis of the selected segments was conducted, inspired by the discourse analysis method of Jørgensen and Phillips (2002). According to this method, we first create a scenario of media exchanges necessary for a successful curriculum reform, based on literature and our model. (In the introduction of the two examples of media exchanges in the results section, summaries of relevant parts of the scenario are shown.) The scenario is then compared with information from stakeholders on the exchanges that actually took place. This information was obtained by the interview segments in the four working files (i.e. specific to a particular subsystem). To compare the interview segments in each subsystem, they were first clustered according to the medium of exchange and exchange process which they related to. This produced a classification of the interview segments according to functional subsystem, medium of exchange and the exchange process. Segments related to the media of exchange and the exchange processes that were directly or indirectly connected to the lack of support and the restriction of autonomy, were then specifically selected for comparison. Based on this selected information, the actual course of the exchanges, as communicated by the actors involved, could be reconstructed and compared to what—according to the scenario—is needed for successful introduction of a constructivist approach to teaching and learning. The comparison resulted in a list of similarities and differences between the reconstructed exchanges and those required according to the scenario.

In the study, the analysis was carried out both at the level of secondary education as a social system and at the level of the study house as a curriculum innovation at the school. The study house was seen as an actor of the subsystem integration of the system secondary education and at the same time as a distinct system. As a system within the secondary education system, the study house showed many similarities with the secondary education system when it came to functions, actors, exchanges and context.

All of the coding of the text segments as pertaining to particular domains of functioning and hence their assignment to the working files was checked by a fellow researcher. During the further coding of the text segments, the interrater reliability of the coding was checked at random. Two experts in the field of educational innovation, closely involved in the test case analysed here, were consulted with regard to the development and testing of the model. A symposium was held at which the model, analysis and results for the test case were presented for feedback from four experts (Carpay and Luttenberg 2010).

The nature, extent and quality of the interviews guaranteed a high level of information in the coded text segments. In preparation for the public interrogation, the commission conducted an extensive preliminary investigation and assembled national information which could be used to check the statements of the interviews. Since the hearings were public, those who were interviewed knew that their statements would be checked and corrected. The large amount of information obtained from so many different parties allowed the researchers to cross-check much of the infor-

mation obtained and thereby provided a considerable degree of internal reliability. If necessary, reports, journal articles and newspaper articles were analysed for extra cross-check. For a complete list, see Carpay (2010).

## Results

In general, numerous statements about the media of exchange for the development of constructivist teaching and learning in secondary education in the 1990s (i.e. the ‘study house’) could be identified. The relevant interactions were not always smooth. This appeared to negatively influence the implementation of the curriculum reform.

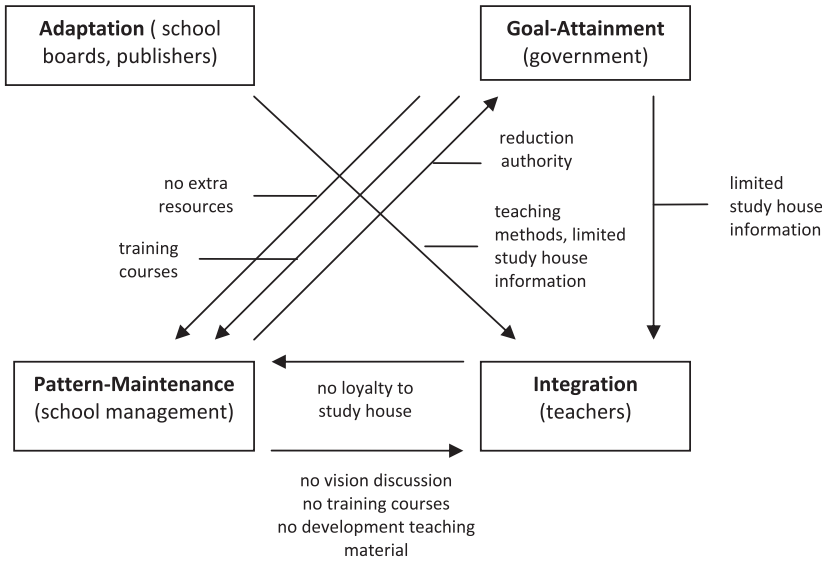
In the following, we present three examples of media which a subsystem exchanges with other subsystems in order to implement the constructivistic approach in the upper grades of secondary education and the reactions of the other subsystems. Two examples can be classified at the (primary) level of the secondary education system and one at the (secondary) level of the study house as distinct system. All are examples of exchanges which strongly influenced the actions of teachers.

### *Study house socialization*

The first example is the so-called ‘study house socialization’ as an operational definition of *involvement* as medium of exchange. The first example concerns the subsystem in which the school managers are the dominant actors: the pattern-maintenance subsystem. Viewed from the perspective of school managers, the following exchanges should have taken place.

To make as good an introduction of an innovation as possible, school managers should see that teachers, pupils and parents (i.e. the actors in the integration subsystem) are able to internalize values underlying the study house and standards associated with its implementation. In return, teachers, pupils and parents express their loyalty to the educational reform. Study house socialization of teachers requires most attention from school managers. Study house socialization helps to legitimize the authority of policy-makers (i.e. the actors in the goal-attainment subsystem). Via socialization, school managers lay the foundation for approval of governmental decision-making by members of the school community. In turn, the government has the power to supply funds and facilities or, in other words, the resources that schools may need for the successful implementation of reforms. Socialization also provides school boards—as the employers of teachers and actors in the adaptation subsystem—with motivated teachers. And in return, school boards will provide good employment conditions and a good working climate.

The interviews show that the actual exchanges do not reflect the elements of the ideal scenario and thus, do have other effects than might be expected on the basis of the ideal scenario. The actual exchanges associated with study house socialization are depicted schematically below and



**Figure 3. Exchanges related to study house socialization.**

then described and documented using segments from the original interviews (figure 3).

The principal media to shape the socialization function were: school-wide discussions to establish a shared vision of the study house, training courses to impart new teaching methods and publication of new teaching materials geared to the aims of the reform. In the interviews, no statements could be found about efforts on the part of school leaders to meet with their schools to establish a shared vision of the study house. In contrast, the Steering Committee appointed by the government to develop and guide the implementation of the study house reform appeared to do everything in its power to familiarize the ‘field’ with the study house reform. The Steering Committee organized events, produced publications, encouraged networking among teachers and made a statement about training the new teaching methods. The chair of the Steering Committee:

... We felt that all teachers should have training and supervision ...

However, the Secretary of Education refused to make additional resources available for such purposes as she thought that the school managements should determine and manage their *own* training policies:

Of course it has never been free of obligations. The school had to find its own line in this. I think it has become a problem that many schools do not manage this ...

The leading role of the government-appointed Steering Committee in communicating the study house ideas and the refusal of the Secretary of Education to provide additional resources for this purpose may certainly explain the passivity of most school leaders with regard to the preparation

of their teachers for the reform. But, the performance of the school leaders with regard to regular staff training also fell short, in the opinion of the Director of the largest teachers' union in the Netherlands. He stated:

... We must also admit that we came across a good offering [of training opportunities by the school management TC] as an exception rather than the rule.

Also, according to the director of the largest teachers' union, teachers were forced by their school managements to spend available training time on other things:

... these people complain, legitimately, that they have to do a great many of the things in their own time. Their experience is that little comes of utilizing the space which—viewed theoretically—is included in the collective labour agreement ...

The primary function of the government-appointed Steering Committee was to set policy and allocate available resources for the implementation of this policy. In this light, it is understandable that the Steering Committee provided the school managers with training via an educational support organization. The director of the educational support organization not only confirms this but also notes that the school leaders made less effort for their teachers than the Steering Committee made for them. If and when the school leaders requested training for their teachers, they did this on a school-wide basis. But, despite these efforts, relatively more school leaders, than teachers, appeared to be initiated into the reforms. The Director of the educational support organization:

... The group which you mean, we reached it when we were approached by schools to guide the school processes. We always worked, then, with the entire teaching staff. Quantitatively, that is less than the other [trainings for the school managers TC].

The interviews showed the conviction of the Steering Committee that direct contact between a government-appointed ministerial advisory committee and teachers in school is possible. Nobody questions whether this socializing role was justified or whether, in fact, the Steering Committee possibly usurps the authority and responsibility of school managements via such contact. A prominent member of the Steering Committee also doubted that the efforts of the committee really reached the teachers:

... To date, 75 issues in a Study House series [of publications TC] have appeared on all possible aspects. There have been large conferences (...). There is also a huge amount of brochures on all possible aspects (...). But I wouldn't dare to say that that manner of approaching the teachers was successful ...

Publishers, who are actors along with the school boards in the adaptation subsystem, noticed that the teachers they targeted with their new textbooks knew *very* little about the aims of the study house. The publishers also thus served a socialization function and organized training days at which they tried—using their new textbooks—to immerse the teachers in

the didactics needed for a successful study house. According to one publisher:

... We did not have the pretence of thinking that the entire preparation for the second phase [the reform of the upper grades TC] would be done by this. It was simply lending a helping hand by further explaining not only the substantive side but also the didactic side.

Despite the efforts of the publishers, ignorance with regard to the study house on the part of the teachers led to poor implementation. The most important medium of exchange within the integration subsystem is good organization of classroom teaching and learning. For most schools, this was out of the question after the implementation of the study house reforms. According to a representative of the teachers interviewed by the Parliamentary Research Commission:

... Many networks were formed around all kinds of themes and people experimented with all kinds of things. But that is always, of course, limited. Among the training courses, we [the school subject associations TC] also had courses on [teaching TC] 'learning to learn' although we, ourselves, didn't know how to do this all too well. You then even reach only a limited number of people ...

The teacher's reform ignorance also meant little loyalty among them and their pupils to the vision underlying the study house reform or the rules. The extra time and energy required by the introduction of the study house led the teachers to feel little solidarity with their school leaders or national policy-makers. According to another teacher representative:

... if the OCW [Dutch Ministry of Education TC] does something wrong, it is that the inspectorate goes and talks with the managers; steps into the lesson of one teacher on one occasion; then says that he is not practicing ADSL—activating didactics by cooperative learning—but never asks him why he didn't do that at that moment. He just talks with the directorate.

To summarize: both not only in general but also with regard to the implementation of the study house reforms in particular, school leaders neglected their socialization function within the education system and did this despite being the key actors in the pattern-maintenance subsystem. Within the context of the study house reforms, the socialization function of the school leaders was, therefore, taken over by the government-appointed Steering Committee, which is an actor in the goal-attainment subsystem. To do this effectively, however, there was insufficient contact with the teachers.

For the sale of their products, the publishers from the adaptation subsystem also tried to fill the socialization gap. However, their commercial interests only partially corresponded with the aims of the educational reformers.

Given both the teachers' and school leaders' unfamiliarity with the aims of the study house reforms, there was no commitment to the underlying values or rules and opposition of the policy-makers instead. The

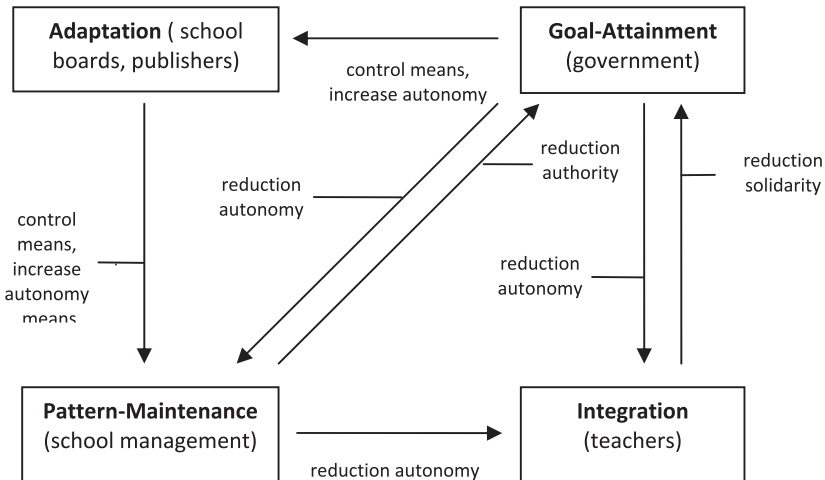
outcome is that the study houses in most schools have been organized according to existing patterns.

*Autonomy*

The second example of the exchanges between the subsystems in the education system and the reactions of the other subsystems concerns the granting of autonomy or, in other words, the operationalization of the exchange of *power*. Actors in the goal-attainment subsystem set the targets and the standards to be met as part of the study house reform; they determine policy for the implementation of a constructivist approach to teaching and learning; and they distribute the means to carry out this policy (e. g. money, manpower and regulations). The targets to be set depend upon the predominant vision of education in society and thus on what politicians endorse and propagate. Policy implementation is monitored by the Educational Inspectorate.

The dominant actors in the goal-attainment subsystem are thus the Secretary of Education (who is politically responsible for the study house policy) and officials who prepare policy; politicians who approve it and monitor its implementation; the government-appointed Steering Committee which serves as a ministerial advisory committee to help schools put policy into practice; and the Educational Inspectorate which checks on practice.

The power to determine study house policy, lay down rules and make money/facilities available is the medium of exchange for the goal-attainment subsystem. In return, the parties in the goal-attainment subsystem should receive recognition of their authority from the school management, solidarity from the teachers and a climate conducive to educational reform from the school boards.



**Figure 4. Exchanges related to autonomy.**

Just as for our first example, the interactions characterizing this second example unfolded differently than might be expected on the basis of the model presented. In fact, effects occurred which few could expect. Once again, the actual exchanges are depicted—but now with autonomy as the medium of exchange—schematically below and then described and documented using actual segments from the interviews (figure 4).

In the 1990s, the Dutch government started a process of decentralization and worked to make schools more autonomous by transferring part of its control over educational resources to school boards. In the words of the then Secretary of Education:

... We have said ... over the past 25 years, we are working towards a more autonomous school. We have given that process tremendous incentives. I think that there are a great many public institutions which would like to control their means as a number of educational institutions currently can ...

In turn, the school boards gave some of their newly acquired power to school leaders. The role of the school management then shifted, as described by the director of the association of school managers in the Netherlands:

... He was then moved up in the direction of manager, and I think that today's school leader/administrator is foremost an entrepreneur, an educational leader and an educational-social entrepreneur ...

Another director of the same association of school managers indicated that the nature of his role had changed both inside and outside the school.

... In the Netherlands, the role of school leaders in the past 25 years has changed from a first among equals with no formal powers to a representative of the recognized authority [the school board TC] with a high degree of autonomy in relation to the authority.

The views of one of the interviewed teachers were clearly negative about the increased authority being given to school managements for working on the organization of the study house.

... As long as the management is allowed to decide these types of things, I think that's a bad thing. It does that with respect to the allocation of hours and with respect to the assignment of classrooms and so forth ...

The increased grip of school leaders on managerial issues also affected classroom practices. According to the director of a teachers' union, the use of fewer teaching staff (i.e. a decision made by the school management) meant less control of the teacher over his/her own educational practices.

... You see schools changing their education system, reducing the number of teachers and recruiting other personnel (...), but this means that a teacher can no longer really decide on how to give his own lessons ...



The study house was initiated by the government. Through examination programmes, the government can compel the study house reform. A member of parliament expressed how this obligation was shaped from above:

... The study house was embedded in testing and examination programmes. It was clear in the regulations that this [the study house TC] was imposed on the schools as a constraint and it was also in the information brochure ...

In contrast to the role of government in the distribution of educational resources, the influence of the government on educational content increased. According to the director of the largest teachers' union, this reduced the control of the teacher over his classroom and teaching practices also.

... You see a sort of reproduction of the tightening of screws from the process management to the school directorates and, at the bottom of the ladder, you stand there as a teacher looking at your part in this.

With government inspection of the implementation of the study house, the government was right on top of classroom practices. According to a member of parliament:

... They [the Educational Inspectorate TC] checked to see if they were using enough activating teaching methods and papers were being completed [by the pupils TC]...

By inspecting the implementation of the study house, the government comes very close to the didactics in the classroom. A member of parliament:

... They [the inspectorate TC] went to check whether they used enough activating teaching methods and whether the papers were made ...

The teachers did not appreciate such extensive interference with the content of their instruction and teaching practices. Solidarity with policy-makers as a medium of exchange within the integration subsystem was, therefore, hard to find. According to one of the representatives of the teachers:

Politics is concerned with 20 h more or less of geography or whether the tangent should be in ...

The respect of the teachers and the school for government authorities also suffered as result of direct government involvement in the implementation of the study house. According to a school leader:

Mrs ... [chair of the Steering committee TC] spoke about 'rolling out,' but we were—of course—not crazy. We didn't do it in the manner which they wanted. That would have been a catastrophe in that school because the teachers didn't want that [to do things that way TC] ...

To summarize: decentralization of education authority led to the opposite of the intended effect of the study house reform. The space (i.e. autonomy) which was supposed to be created for teachers to adequately implement the study house only decreased while the authority of the school boards and school managements increased. The school boards mandated a part of its newly acquired control over educational resources to realize the goals of education to the school managements. This created a closer relationship between the school managements and the school boards. The solidarity of the school managements shifted from the teachers to the school boards. As a consequence, the interests of school boards prevailed over the interests of teachers and pupils—even in the classroom. More than before, funds got stuck at upper levels and did not reach the levels of the teacher or pupil.

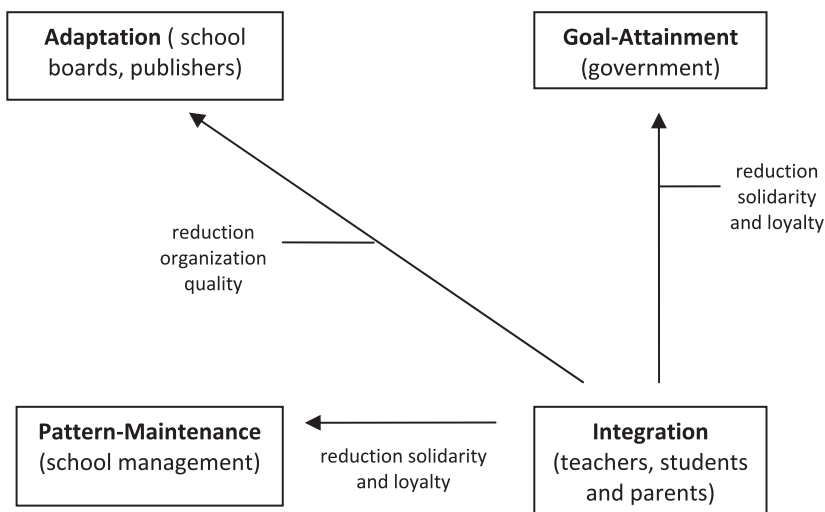
The organization of large group lessons and independent study lessons for the study house not only led to workplace savings (i.e. a reduction in the number of teachers) but also reflected a largely top-down interpretation of study house didactics. School managements did not view training, in general, and particularly, study house training as very important.

By establishing detailed examination programmes with specific 'study house requirements', the government increased its control over both the educational content and teaching methods. However, the imposition of such detailed requirements runs counter to the principles of decentralization which are aimed at making schools more autonomous. The outcome has been no solidarity with policy-makers and no respect for national decision-makers from the school managements, the teachers and the pupils.

### *School organization*

The third and last example concerns media exchanges at the level of the study house. Although in the analysis of this example, the study house is considered as a distinct system, at the same time, it plays an important role in the integration subsystem of the secondary education system. Decisions made to survive as a study house at the (secondary) level of the school may be in conflict with decisions made for the survival of the innovation at the (primary) level of the secondary education system. The example shows the exchanges in the subsystem integration of the system study house.

According to the model, the integration subsystem of the study house has to ensure smooth workplace organization at school. Therefore, the study house should be aligned properly with other school education and with the school organization. The implementation of the study house at school should enable good relationships and solidarity from teachers, parents and students with the school managers and the school board and loyalty to the study house regulations of the school management as media of exchange. At the level of the secondary education system, it should enable solidarity of teachers, students and parents with the national policy-makers. In the study house, the relationships between teachers and students



**Figure 5. Exchanges related to organization in the system study house.**

are very important. It is about supporting each other and about doing things that help to make school life livable for students and teachers.

The actual exchanges associated with the organization of the study house at school are depicted schematically below and then described and documented using segments from the interviews (figure 5).

One of the major reforms of the study house was the replacement of the traditional schedule of teaching hours by a 'study load' approach. Each year, the student has learning tasks that total 1600 h. To realize these learning tasks, schools have to provide students with at least 1000 h of teaching or coaching. The then Secretary of State looks back on his proposal to introduce the study load concept:

In Dutch education we linked every discussion on what children should learn to teachers' time and schedules of teaching hours. Is it not more logical to look at the study load students should have? (...) I don't know if everyone, including policy makers, realised what that would mean if you would continue, reasoning that way.

The Ministry did not have many ideas about the way schools should realize 1000 h of teaching and coaching also. The official concerned saw a role for the inspectorate. The official:

Of course there are always discussions about what may be counted as one of these 1000 h (...) But there is the inspectorate to control that what proves possible in practice ...

So, schools themselves should find out how to organize the study house. That did not amuse one of the interviewed school managers:

Then I made contact with X [member of the Steering Committee TC]. He then said: 'But on the implementation, we have no expertise available, you have to do that at school level.' (...) He then mentioned a few schools that

were doing well. I contacted them but they proved to be two schools who were busy implementing the study house concept, but not that technical structure side.

Many school managers and school boards made cutbacks by implementing the 'study load' approach and other teaching methods. During some lessons, different groups of students were put together to the chagrin of the teachers. The director of the largest teachers' union:

At my own school they had for instance the idea to change the schedule in such a way that you had students of four different classes in your classroom. So you had a little 4 Havo group, a little 4 Atheneum group, a little 5 Havo group and a little 5 Atheneum group. They were scheduled in your classroom, for your subject at the same time (...) but what the purpose was of the idea?

This way of reforming did not promote the implementation of the study house ideas. A board member of the Christian teachers' union:

Often there was no structured idea behind, but in the upper grades of Havo and Vwo [two types of Dutch secondary education TC] one rapidly started to put together large groups of youngsters. Groups of seventy students with one or two teachers, tasks that will take a week and then just watch how it will end. That is not really a careful start.

He is joined by the director of the Parents Association:

The standard for the number of lessons should be justified from the perspective of what a child needs to meet the goals and should not be based on mathematical models that enable [the school TC] to function as an institute. It is about the child.

To summarize: many school managements use the study house concept as a legitimization to organize large group lessons and independent study lessons. The result has consequences not only for the didactic concept of the innovation but for the relationships in the school as well. Teachers and parents find the way the reform is implemented disastrous. They think this way of implementing is not about the student but about the school organization. The study house at school is organized at the expense of loyalty to the ideas of the innovation. The solidarity with both the school and the national policy-makers come under pressure.

## **Conclusions and discussion**

The starting point for this article was the observation that large-scale curriculum reform, as part of a larger educational reform, is a complex process involving contributions from different parties. In the literature, this polymorphism is traced to not only differences between the parties involved in the system but also differences arising from the reform process itself. In the latter case, education is often viewed as a system with educational reform entailing a change in one part which leads to changes in other parts. In this article, we try to identify the components of the

education system and their relations. The polymorphism is thereby understood as an expression of the difference in the contributions of the parties in the subsystems to the education system.

To identify the functional coherence in the contributions made to the education system, we developed a model based upon the functional analysis of social systems by Parsons (1959). We then applied the model to the reform of the curriculum and learning environment of secondary education in the Netherlands in the 1990s and thereby gained insight into the contributions of different parties to the reform effort and how their contributions influenced each other. The present analysis focused on those contributions of major importance for the actions of teachers and particularly, their actions in response to the introduction of a constructivist approach to teaching and learning as part of the curriculum reform. The results show how the exchange process of media between the subsystems gave rise to considerable problems and the following conclusions.

It can first be concluded that each subsystem initially seeks its own solutions to the problems confronting it. In the case of the educational reform that we analysed, the national government, publishers, school leaders, teachers and pupils could be seen to strive first and foremost to solve the problems within their own subsystems.

A second conclusion is that the search for solutions to problems without taking the effects of the activities and efforts by the various subsystems into account can be *disastrous* for the innovation process. In the present reform case, government and school spent too little money on teacher training, which meant that teachers were not sufficiently able to internalize the new curriculum and teaching methods offered to them. That is, decisions made by the government and school leaders to solve problems within their subsystems affected the decisions made by teachers to solve problems in their subsystem, but not in the direction desired by the government or school leaders. In other words: if the actors within a subsystem do not see reciprocity with the other subsystems in the system, then the fulfilment of their own functions may be severely jeopardized. This becomes even more evident in the third example which zoomed in on one of the subsystems of the secondary education system by considering the study house innovation as a distinct system. The study house regulations made it possible to form larger groups of students than usual until then. To do so was attractive for managers in order to stay financially healthy as school organisation, but lead to dissatisfaction of teachers and parents and to less quality of the educational organization in the classroom.

A third conclusion is that when subsystems fail to find appropriate solutions for their own problems, often less suitable solutions which are system unspecific will be imposed or exacted by other subsystems. Instead of implementing their own solutions, thus, teachers must implement the solutions of commercial curriculum publishers or school leaders who are not familiar with the teachers' own practices.

The recommendation that can be drawn on the basis of these findings is that all parties involved in seeking solutions to the problems which

inevitably arise during educational reforms consider the impact of their solutions on other subsystems as well. Therefore, it is necessary to explore the interdependencies and exchanges between the subsystems and the expected effects of the reform. The expected effects should, together with the effects of prior—often not fully implemented—reforms, be reported in an Educational Impact Assessment (EIA) (Pieters and Jochems 2003). The EIA can inform politicians and government officials and guard against the hasty introduction of a reform. Expected effects should concern not only the learning outcomes of pupils (the realized curriculum) but also the expected side effects for those involved in one way or another (the implemented curriculum). How can teachers be expected to deal with the reform? What kind of support and resistance can be expected? What training should accompany the introduction of the reform? Which steps should school leaders take when introducing a reform and what effects can then be expected? What will the reform mean for parents and school boards? What types of resources should be made available and to what extent? What are the expected effects of a decision made in one subsystem on the expected processes and target outcomes in another subsystem? The answers to these questions should be given to achieve a responsible introduction of the reform and to give his value and importance a place in the decision-making process. The EIA can also help streamline the procedures required within the different subsystems and thereby create more effective formal and informal exchanges of information and interactions between the subsystems with successful implementation and dissemination of a reform as a result.

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