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ABSTRACT

An examination was made of the nature and extent of instructional coordination in secondary schools of the Netherlands; specifically, between teaching teams within schools, between teams in different subject areas, and between schools. Four out of 20 Dutch schools were persuaded to participate. Three members of the school management and about 30 teachers from each school were interviewed. The results suggest that one of the most important linkages used in schools was structural in nature with an emphasis on the instructional content. Textbooks played a central role in determining the content of the instruction, and teams used these textbooks as means to plan the instructional process. Findings indicate a strong belief on the part of all those interviewed that a high level of coordination will increase students' achievement; findings also show that cultural linkages are the most important factor in generating students' learning outcomes. The importance of nationally set objectives to guide the instructional process was also noted, as was the fact that interpersonal linkages were scarce in the schools examined. (12 references) (SI)

COORDINATION AND ITS EFFECT IN SECONDARY SCHOOLS

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INTRODUCTION

The central theme of our research project is coordination. Our research project consists of a two-step way of investigating this variable in secondary schools. The first step consist of an exploratory case study involving four secondary schools, the second step consists of a large scale survey involving about fifty schools. This paper deals primarily with the results of the case study.

Before turning our attention to the results we will first pay attention to the conceptualization of the variable coordination, then to our research questions and the perspectives guiding our study. Then, after we have paid attention to the methodology of our research, we will end with the results.

CONCEPTUALIZATION

The issue of coordination in complex organizations is conceptualized in the literature in an number of ways (March & Simon, 1958; Gailbraith, 1973; Mintzberg, 1979; 1983, Kieser & Kubiceck, 1983; Wilson & Corbett, 1983) We will not resume this literature but will highlight some important points.

First, coordination is an important principle of organization. Without coordination there is no effective functioning of any organization. For some organizational theorist coordination is equal to organization; without the need for coordination there is no need for organization.

Second, all organizational theorist agree about the purpose of coordination. The main purpose of coordination is that all the activities of the individual members of an organization are directed to the goal(s) of the organization. In terms of Mintzberg (1979, 3) it is 'the glue that holds organizations together.'

Third, coordination can be achieved in a number of ways. It involves various means. These can be referred to as coordinating mechanisms or ,as we shall call them in our paper, linkages. In the literature there is some confusion about the number and nature of these linkages, although there seems to be a growing consensus (Kieser & Kubiceck, 1983).

The last point on which organizational theorist agree is that mechanisms of coordination are affected by other characteristics of the organization. Much of the discussion has revolved around task interdependence, task uncertainty and size of the organisation (March & Simon, 1958, Perrow, 1970).

For our study we identified in close correspondence with the conceptualization of Wilson & Corbett three types of linkages, namely structural, cultural and interpersonal linkages. Structural linkages operate as the ways by which a school can translate its intent through the control of members' behavior. This can take two forms. First by exerting formal control through the exercise of authority. Second by

enforcing rules concerning the instructional system. Both limit the autonomy of organizational members over the task they perform. The less the discretion of the individual worker, the greater the linkages. Cultural linkages refer to the shared views on the schools' and teams' primary goals. These shared views lead to similar behavior patterns and the more similarity in these patterns the greater the linkage. Interpersonal linkages refer to activities like instruction-related discussions, observation of colleagues in their classroom, shared planning, preparing teaching materials and lesson plans.

RESEARCH QUESTIONS

Three purpose guided our study. Our first asset was to determine the nature and extent of instructional coordination in secondary schools. When we look at school teachers seem to work highly autonomous. However that seems only to be true in the time frame of an academic year. Within one subject area students move from one grade to another and from one year to another. This means that the work of one teacher has consequences for the work of other teachers. In other words, within subject areas teachers pose contingencies for each other and theoretically this means that their instructional and instructional related activities have to be coordinated to prevent them from working at cross-purposes.

Our second purpose is to explain the differences between coordination between teams and schools. As stated above, mechanisms of coordination are affected by other organizational characteristic. In our study we dealt only with size and task uncertainty. Charters (1975) states that task uncertainty is a variable on which school may differ from other organizations , but share with one another. However, subject areas may differ on this characteristic. For instance, the teaching-learning process of mathematics is much more narrowly and intimately cumulative than for instance history. This seems to be reflected by national guidelines and nationally set goals governing the content of these subjects. The goals and guidelines governing mathematics are clearly stated and well defined and are tremendously influential in schools by almost completely limiting the discretion of teachers in issues of content. The guidelines and goals for history on the contrary are more abstract in nature and have their impact on the content of the instructional process.

Our third goal is to asses the effects of coordination. Coordination in schools is more difficult to achieve in human-service organizations as schools than it is for instance in organizations that manufacture automobiles. The organizational theorist Thompson (1967, 137) argued that "when the core technology of an organization must be employed on dynamic human objects, the outcome is in part determined by those human objects.

The same of course is true for school organizations. Schooling is an interactive process and the outcome of this process is for a great deal determined by the students'

willingness and ability to learn. It is also clear that the outcome is determined by the skills and experience of individual teachers. But since teachers are member of teams characteristics of these teams and the way these teams arrange their instructional organization may effect the learning outcome of students.

So teams and their members are the main focus of our study. In a way this means a confinement. Teachers do have contacts with teachers from other subjects and teachers and teams do make attempts to "correlate" their subjects. However, we believe this is still so rare a condition in secondary schools that we felt we could ignore these attempts and focus ourselves on teachers and teams within one subject area. We believe that if and when coordination of the instructional process takes place in school, it will take place mainly within these subject areas.

PERSPECTIVES

Regarding school organization the concept of linkages is subject to theoretical and empirical controversies. One can discern two contrasting views.

The first view rejects the notion that schools are tightly linked organizations. It is a view that has become quite popular in recent years and has been most clearly enunciated by Weick (1976). The key word here is 'loose coupling' and it conveys the notion that schools are organizations devoid of meaningful mechanisms for coordination and control. In school organizations according this view.teachers enjoy great discretion over content, methods and goals of the instructional process without any constraint from the bureaucratic and collegial aspects of school and merely use the school organization for their own benefits. This point of view can be best summarized by the statement of Meyer and Rowan (1978):" Structures are decoupled from each other and from ongoing activities. In place of coordination, inspection and evaluation, a logic of good faith is employed'. There is some empirical evidence for this point of view. Packard (1978) found that teachers had a great deal of discretion regarding teaching-style, lesson planning, the scheduling of instruction, lesson planning, the scheduling of instruction and the selection of instructional materials other than textbooks. Besides they found that interpersonal linkages were scarce. Even the informal contacts of teachers were devoid of references to classroom practices. Miskel, McDonald and Bloom (1983) came to the conclusion that teachers control their own classroom, act relatively independent of their colleagues and work closely with their students. The same message was already conveyed by Lortie (1975).

The second view can be derivated from the still growing body of literature on 'effective schools'. The central theme of these studies is of course to look after characteristics of schools which are conducive to learning outcomes Terms like 'linkages'and 'coordination' are not frequently used in these studies, but still they represent an attempt to improve

coordination (Abbot, 1987). According to the research effective schools are those schools in which (a) there is a climate conducive to learning (b) teachers hold high expectations (c) a system of clear instructional objectives, and (d) strong educational leadership. In terms of linkages effective schools seem to have strong cultural, interpersonal and structural linkages.

Besides improving learning outcomes tight linkages also seem to affect the implementation of new practices (Wilson and Corbett, 1983) and perceived organizational effectiveness (Miskel et. al., 1983).

SELECTION AND DESCRIPTION OF SCHOOLS

Unfortunately we were not able to select schools a priori along certain characteristics. In the Dutch context its very hard to persuade schools to participate in research projects like ours. We approached twenty schools with the request if they were willing to participate. Four schools gave permission to participate.

Briefly we will sketch the characteristics of these schools. Before describing these schools we would like to emphasize that the characteristics of the schools involved were determined without any knowledge of their learning outcomes. We believed that knowing their learning outcome could bias the collection of our data.

School A was an regional school. About fifteen hundred pupils attended the school. Coordination has been since long an important feature of the school. This emphasis on coordination can most clearly be seen in the organizational arrangements that were taken by the school management to facilitate instructional coordination. For example, in the class schedule frequent opportunities were built in for teachers to discuss their work. Besides, their were strong ties between teacher teams and the school management. The vice principals of the school attended the meetings of the teaching teams.

School B was also an regional school and was attended by fourteen hundred pupils. This school was characterized by heterogenity in norms and values among teachers concerning almost every aspect of the school. Not only was there disagreement about the primary goals of the school and how the curricula could be best arranged, but teachers also differed widely on their willingness to participate in the teams. Besides, linkages between the school management and teacher in the operating core were weak.

School C was an urban school with a student body of fifteen hundred pupils. This school was in a process of change. It used to be a loosely coupled school, but in recent years things have changed, although slowly. More and more emphasis is placed on coordination and academic achievement. Changes in the composition of the school management are largely responsible for these changes. The school management was and still is the most important initiator and stimulator of these changes. It was also the school where teachers and

teacher teams were most closely and formally monitored.

About thousand pupils attended school D. The most distinctive feature of this school was its strong emphasis on academic achievement resulting in high academic press for pupils. Another important characteristic of this school was the high quality of the teacher body. Sociologically spoken they could be addressed as archetypical professionals. Their commitment with their subject field was strong and they were strong advocates for keeping high standards in a time when standards seems to be declining. These points of view among teachers were also responsible for conflicts between teachers and school management. Attempts on behalf of the school management to lower the standards were strongly resisted by the teachers. The last distinctive feature was the emphasis on professional autonomy. Instructional coordination was seen only as a necessity because of the growing complexity of the school organization due to the growth of the student body and, as a consequence of this growth, the heterogenity of pupils skills and capacities.

Comparing the organizational characteristics of the schools we can say that a great similarity exists between school A and B. They are equal on the variables size and location. Besides, both are the same type of school. Both schools are combined schools with three levels of general secondary education (junior general secondary education (MAVO), senior general secondary education (HAVO) and pre-university education (VWO)). Last but not least, the background variables of the student body are alike. School C and D are similar with respect to location, type of school (both are combined schools with two levels of general secondary education (HAVO and VWO)) and the composition of the student body. They differ on the variable size.

DATA COLLECTION

The data were collected by interviewing in every schools three members of the school management and about thirty teachers. Among these teachers there were fourteen teachers of teaching teams. As stated above, every team was responsible for the instruction in one subject area.

The questions concerning the school management referred to whether or not they employed structural or cultural linkages with regard to the instructional system and to the pupil composition of each school. The teacher interviews referred to the nature and extent of the instructional coordination in every subject area and the perceived effects. The interviews were structured.

Additional data were collected by screening notes and meetings of school management and meetings of school management and teams, and by attending these meetings. As achievement scores were collected the student marks on the final examination over the last five years.

ANALYSIS

To analyze the data we employed methods of qualitative data. Investigated were the difference in nature and extent between (a) teaching teams within schools (b) between teams in different subject areas and (c) between teams.

Several steps were taken to asses the effects of coordination. The first step consisted of ranking the teams on the three dimensions of coordination, namely structural, cultural and interpersonal. This was done independently by four researchers. The second step consisted of comparing the rankings of the each researcher and by computing the definitive ranking on each of the three dimensions. The total level of coordination was computed by adding the rankorder of the three dimensions. As output measures were used the average achievement scores of teacher teams and schools on the final examination over the last three years. These achievement scores were also ranked. In order to establish relations between variables rank order correlations were computed.

Besides, those teams were further analyzed whose average achievement scores were above (> 0.5) the national average achievement score.

RESULTS

In this paper we will try to answer two research questions. The first question involves the nature and extent of coordination in our schools, the second question involves the effects of coordination.

The nature and extent of coordination

The results suggest that one of the most important linkages use in schools is structural in nature. Most crucial here seems to be the instructional content. Textbooks play a central role in determining the content of the instruction and almost all the teams in our study used these textbooks as means to plan the instructional process. This is not so strange because teachers have little time to devote to instructional planning; their time is almost totally occupied in carrying out instruction. Textbooks also determine the instructional process, but seldom teams develop explicit policies concerning the way teachers should deal with the content.

Decisions regarding modes of interacting with pupils, the particular style of teaching and the selection of instructional materials other than textbooks were predominantly left over to teachers.

The tightness of the these structural linkages have a strong correlation with the size of the team. The greater the team the more explicit policies exist among teams concerning the instructional content. The discretion of teachers in determining the content and the use of instructional materials other than textbooks were severely limited in large teams. Besides, the larger the team the more explicit rules teams

develop to guide the processes of testing and evaluation of pupils. In these matters the discretion of of teachers is severely limited.

An important role play also national set objectives to guide the instructional process. The clearer and more influential (in terms of determining the content of the instructional process) these objectives, the more explicit policies teams develop. For our study this meant that given size teams differed widely in coordination. Teams in subjects where the discretion of teachers was severely limited by objectives developed outside the school, for instance teams who teach mathematics, reached a higher level of coordination than teams where teacher autonomy was not limited, for instance teams who teach English. Two reasons might explain this fact. First clarity of goals may facilitate coordination and disparities in educational views may loose their relevancy. Coordination in teams where the influence of objectives developed outside the school is small largely dependent of the team members' shared views with regards to goals, content and method of the instructional process.

Interpersonal linkages (discussion, observation, the joint preparing of lessons etc.) were scarce in our schools. Contacts between teachers evolved mainly around the pace of the instruction and ,if policies are lacking, arcund the level of achievement pupils should attain. These results are not surprising. They are largely consistent with other studies concerning the relationship between the way teams work and the variables discussed here.

The effects of coordination

The effects of coordination on the learning outcome of students are most clearly summarized in table 1.

TABLE 1.

	Students'Achievement
SL	0.17
IL	0.16
CL	0.56
Coordination	0.41

SL=structural linkages
IL=interpersonal linkages
CL=cultural linkages
n=42

Table 1 shows clearly that cultural linkages are the most important in generating students' learning outcomes. There is a rankorder correlation of 0.56 between the variables cultural linkages and student achievement.

Far less important are the relations between the other two linkages and the average learning outcome of students. These correlations are rather weak, respectively Rs=0.17 and Rs=0.16. The correlation between the overall level of coordination and student achievement is Rs=0.41.

The small importance of structural and interpersonal linkages is in a way not so strange. As we have seen above structural linkages are very much determined by the size of the team and/or school. We found a relationship of Rs=0.70 between size of the team and the level of structural coordination. Controlling for size (3 groups with each n=14) the correlations ranged from weak for the group containing the large and small teams (Rs=0.13, Rs= 0.12) to high for the middle-sized teams (Rs=0.73). These results are rather ambigious.

The correlations between the the different linkages also seem to suggest the important role of cultural factors. These results are shown in table 2.

TABLE 2.

	SL	IL	CL
SL		0.17	0.31
IL			0.37
CL			

SL=structural linkages
IL=interpersonal linkages
CL=cultural linkages

We see that the correlations between cultural linkages and the other two linkages are rather strong. Our interpretation of these findings is, that cultural linkages here are the key factor. In our view cultural linkages facilitate structural linkages concerning the instructional system as well as interpersonal linkages.

We can summarize these results by concluding, that the results show the important role of cultural linkages in generating students' learning. As such, our findings are congruent with the findings of the 'effective school movement'.

The same picture seems to emerge if we look at the difference between schools. In this respect the most promising results come from comparing school A and B. These schools are equal with respect to important things as pupil composition, size, denomination and degree of urbanization. Still, the organizational characteristics of the schools differed widely. School A exceeded B by far in level of coordination. In school

A coordination mattered; there were rather strong ties between the school management and teachers and teams, opportunities for teachers to work together were an important part of the school culture and the school was further characterized by a homogeneous culture and teams that coordinated the instrcutional process very well. In school B these things were lacking, especially the lack of a homogeneous culture and strong ties between school management and teachers and teams. These differences seem to have consequences for students' achievement. School A not only exceeded by far school B in level of coordination but also by far in average student achievement.

Comparing school C and D was more difficult, mainly due to the difference in size, but still there is some evidence that cultural factors were responsible for the difference in average student achievement. School C employed more structural linkages than school D, but given the difference in size the gap only seems to be marginal. On the other hand, school D was in contrast with school C a school with a 'mission', which pervaded almost every team. In this school there was a very strong emphasis on academic achievement and we believe that this is an important factor in generating students' achievement. Of course, other factors may also play an important role. For instance, an alternative explanation for the difference in learning outcome between these schools is the excellence of the teacher body in school D.

The same story also seems to be true for teacher teams that excell. We identified eight teams with results exceeding far above the national average. Not surprisingly these teams belonged to school A and D. In this respect it seems to be clear that overall school characetristics influence the work of these teams. The features of the excellent teams were equal to the characteristics of our best performing schools. Excellent teams are characterized by a willingness of the members of the team to cooperate, collegial relationships and shared views on the primary goals of the educational process, resulting in explicit team policies and quite similar behavior patterns in classrooms.

Most confusing are the results concerning instructional leadership. In all four schools the schoolmanagement was wiling to influence and control the activities of and results of teachers and teams. In our interviews they all put concerning the activities of teacher teams an emphasis on coordination within teams, believing that a high level of coordination will increase students'achievement. However, these point of view led in our schools to quite different activities on behalf of the school management. In other words, there were in our schools rather great differences between the level and nature of activities on behalf of the school management. These activities ranged from formal supervision/evalution of the activities of teachers and teams and trying to impose rules to activities more cultural in nature, like informal talks with teachers and head of departments. These differences in nature and level of activities seem to reflect the power relations in these schools. In other words, the nature and level of activities on

behalf of the school management seems to be dependent of the willingness of teachers to undergo these activities and of teachers perceive these activities as legitimate. In this way is the 'tightness' of a school rather a characteristic of the school as a whole and dependent of shared views among all members of the school on the goals of the organization and the way the organization should be arranged. With regard to students' achievement the data are also confusing. This can be best shown at the following examples. In school D the school management tried to lower the standards held by teachers in order to satisfy the parents of pupils who complained about these standards held by teachers. However, teachers refused to obey to these requests of the school management. Besides, the linkages between school management and teachers and teams were weak. Still, it was a high performing school. In school C performances were low, but the linkages between school management and teachers and team were rather strong. On the other hand, data concerning school A and B suggest that linkages between school management and teams do matter. For us these results are rather puzzling.

DISCUSSION

In this paper we discussed the issue of coordination in secondary schools. We tried to answer two questions:

(a) what is the nature and extent of coordination in secondary schools?

(b) what are the effects of coordination in secondary schools?

For us the most important results are the results concerning the relationship between coordination and students' achievement. The data suggest that cultural linkages, the shared views of teachers on methods, content and goals of the instructional system are the most important factors in determining students' achievement. Of course, these results should be handled with care. We all know the flaws of a case-study design and these flaws are also true for this (part of our) research-project. Still, we believe the results are not meaningless and certainly they stimulate us to develop a more sophisticated research design to investigate these variables. And that is what we will be doing in the near future.

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