

EDUCATIONAL LEADERSHIP: INFLUENCES ON THE USE OF NEW KNOWLEDGE IN SCHOOLS

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ABSTRACT

A sample of Victorian teachers were asked to nominate colleagues in their school who regularly informed them about new educational knowledge. The results were analysed by level of schooling. While the school principal was the single most influential person in primary schools, the pattern in secondary schools was more varied, with librarians and heads of subject departments being often cited. For a high proportion of respondents, the pattern of communication was limited to one or two people within the school. Eight patterns of communication within schools were identified. The results are consistent with the notion that the school as an organisation is loosely coupled.

INTRODUCTION

New educational knowledge made available to teachers could be employed in several ways. It might be used at the classroom level, for example, to assist teachers to incorporate a different teaching strategy. New knowledge may be useful in department level planning, for example in making decisions about the suitability of a new reading program. Or new knowledge might aid decision making at the school level. For example information about student home background characteristics could influence the policy development of the school.

Information designed for use by school staff can come in different forms, from that directly applicable in the classroom, to esoteric philosophical dissertations which apparently have tangential relevance to the day to day problems of schooling.

New knowledge can also come from different sources. Fullan (1981) distinguishes between four types of knowledge flow, which take into account the source of the knowledge. These are; (1) specific use resulting from a specific R and D (Research and Development) program, (2) diffuse use resulting from a specific R and D program, (3) specific use resulting from a diffuse R and D source (or sources), and (4) diffuse use resulting from a diffuse R and D source (or sources). An example of each of these classes is; (1) fidelity implementation of an articulated externally produced curriculum project, (2) course adaptation of an articulated externally produced curriculum, (3) the development of a school level curriculum which draws together elements of other similar curriculum programs, and (4) variable use by teachers in a school of new information about research into reading which results from several investigations into the problem.

While studies of the use, sources and forms of educational knowledge have been given some attention, the study of internal school diffusion of such information appears to have been neglected. This topic is the focus for this paper. The need to understand internal school diffusion is related to the school based curriculum development movement (SBCD) in Australia. In most schools, the staff are expected to develop and implement curricula and to contribute to the creation of school policy. It would seem necessary for them to have access to a wide range of information if appropriate decisions are to be made on a range of educational matters. The SBCD approach assumes that a school is largely composed of teachers who are 'extended professionals' (Hoyle, 1971), willing to devote time and effort towards the creation of a school program suited to the needs of the students attending that school.

Many teachers have access to information through individual activities, such as subscribing

to journals. However, data from another section of this study shows that (1) most teachers rely on their school for access to journals and articles, and (2) school organised or supported seminars are important ways by which teachers obtain new knowledge (Owen, Malcolm, and Hall, 1981). It is apparent that the school principal is in a powerful position to control the flow of information on these matters, due to the fact that much of the material intended for within school distribution is addressed to him/her.

We know almost nothing about who is responsible for information distribution once it arrives within the confines of the school. Clearly, there is a differentiation of duties within schools and in some cases certain staff members may be assigned the roles of internal knowledge disseminator(s). We must also take into account the possibility of informal systems of communication providing effective linkages between teachers within the school (see Owen and Hall, 1981). While the ultimate concern is to relate patterns of within school communication to effective use of the new knowledge by teachers, in this paper we investigate only whether such patterns exist, and how they fit together.

DATA BASE

The data were collected from a sample of teachers who were selected using a two-stage sampling technique (see Ross, 1978). Altogether 415 teachers in 87 Victorian schools were interviewed in sessions lasting for about 45 minutes. They responded to a checklist about their use of new educational knowledge, opinions of some of this knowledge, and the sources of this knowledge. Data collection thus made it possible to use the teacher or the school as the unit of analysis. In this paper a between teacher analysis is outlined.

FINDINGS OF THE STUDY

Two distinct aspects of within-school diffusion of knowledge are reported. The first concerns the identification of people within each school who were perceived to be influential in providing information to the respondent. We shall call these people Within-School Linkers. The second concerns the linkage patterns, within-school combinations of people who passed on information. The information was that which generally emanated from outside the school in which the respondent was located. In terms of Fullan's (1979) categories this information was from a diffuse range of sources and it tended to be related to research/evaluation and curriculum development in the wider educational community.

Within School Linkers

In order to identify important Within-School Linkers, we developed the following item which was put to each of the respondents:

In the spaces below, indicate the four (at most) staff members who [this year] have been most influential in directing your attention to sources of new educational information; sources such as seminars, meetings, articles and journals.

List the staff in order of influence, describing their designated position in the school. (To help us clarify links between staff, please write the full initials of each staff member also.)

e.g.	LIBRARIAN	:	MJ O'B
A.	_____	:	_____
B.	_____	:	_____
C.	_____	:	_____
D.	_____	:	_____

So that we can identify your place within the communication network, please indicate your designated position and full initials.

Self: _____ :

The item enabled an order of influence of Within-School Linkers to be identified, their place in the school system, and the status of the respondent.

All told, usable replies were obtained from 407 of the 415 respondents, who were 204 in secondary schools and 203 in primary (elementary) schools. Of the 203 primary teachers, five percent were vice principals, 17 percent were heads of department or year level coordinators, five percent were school librarians, and five percent were categorized as miscellaneous (special assistants, school psychologists, laboratory assistants, etc.) The remaining 69 percent classed themselves as 'teacher'; that is, they had no designated promotional position in the school hierarchy. Of the 204 secondary teachers, three percent were vice principals, 35 percent were heads of department or year-level coordinators, two percent were librarians, and two percent were miscellaneous. The remaining 57 percent were teachers. The majority of the sample were thus likely to spend the majority of their day-to-day school experiences in the classroom and in classroom related activities (rather than on school administration).

In the following analyses, data are analyzed between the two levels of schooling, and then within each level. This was done because of the known differences in administrative and curricula arrangements between the levels. For example, most secondary schools base their total curriculum on the offerings of subject departments, while primary schools are more likely to take the grade or year level as the unit of organization of the curriculum. Also, secondary schools are likely to be larger than primary schools. Pupils often stay in intact groups mainly taught by a single class teacher in primary schools, rather than by several teachers in diffuse groups as in the secondary school.

The gross rankings of influence for both levels of schooling are outlined in Table 1. Percentages of responses for five designated school positions (principal, librarian, etc.) are given for the most influential linker, then the second, third and fourth most influential linkers. As there was no compulsion for respondents to complete all four spaces on the item, we have also included the percentage of non response or no listing for the four rankings. The secondary and primary school patterns for the most influential linker are quite different. In secondary schools, 21 percent nominated the school principal, 11 percent a vice principal, 31 percent a head of department, 26 percent the school librarian and seven percent a teacher. Three percent did not nominate any member of the school staff. In primary schools, the figures for the equivalent categories were; principals 49 percent, vice principals 10 percent, heads of departments (generally senior teachers in primary schools) 10 percent, librarians 11 percent, and teachers nine percent. Three percent of respondents gave no nominations. Thus, in secondary schools, department heads and librarians were the most often voted personal information sources while, in primary schools, the school principal was overwhelmingly chosen as the most important knowledge disseminator. A somewhat surprising result, given the thrust for school-level decision making and collegial approaches to curriculum development, is the relatively small proportion of respondents who nominated classroom teachers as their most important person source of new information. Only seven percent of secondary and nine percent of primary teachers listed fellow teachers.

The figures show up two approaches to information communication. Whereas the school principal is pre-eminent in the primary school, there is a diversity of sources at the secondary level. Here, the influence of department heads may be explained by structural arrangements. In terms of internal knowledge dissemination, Victorian secondary schools are far more 'loosely coupled' than their primary counterparts (see Stackhouse (1977) for a lucid explanation of the meaning of coupling in educational terms). Of note is the emergence of the librarian. One quarter of secondary school staff rely on him/her most for new information about educational investigation and findings.

TABLE 1
 MOST INFLUENTIAL LINKERS
 PERCENTAGES OF RESPONDENTS NAMING PEOPLE IN EACH POSITION LISTED

Ranking of Within School Linkers	Principal	Vice Principal	Department Head	Librarian	Teacher	No Listing
Secondary Schools (N=204)						
Most Influential	21	11	31	26	7	3
Second "	8	13	34	9	16	16
Third "	6	9	15	10	18	39
Fourth "	3	4	9	3	11	67
Primary Schools (N=203)						
Most Influential	49	10	10	11	9	3
Second "	17	16	19	11	16	16
Third "	4	9	12	11	17	40
Fourth "	3	5	7	4	15	65

Note: Figures in the table are percentages; added across.

: A small percentage of responses (from one to seven percent) could not be classified into the six categories.

: Between teacher analysis.

Table 1 also enables some conclusions about gross patterns of within school linkages to be made. The second, third and fourth most influential people in the school hierarchy are shown. There are similarities and differences between responses from secondary and primary school teachers. The major similarity is the percentage of teachers who did not list linkers at one or more ranks. These figures are within two percent for all four rankings. They show that four teachers in 10 did not or could not name a third rank, and two teachers in three did not or could not name a fourth rank. By simple subtraction then, only 33 percent of teachers nominated four linkers, 28 percent named three linkers, 23 percent named two linkers, 13 percent named one linker and three percent did not nominate a linker at all. These figures suggest that many teachers make only limited contacts with school colleagues regarding new educational knowledge on an ongoing basis.

The Principal as Most Important Linker

Analyses of other trends in Table 1 must take into account the fact that nomination of the second, third and fourth linker is contingent on prior nominations. That is, if the principal of a school was the most important communicator, he/she would not be nominated again lower in the order.

Of more value is to examine answers to questions like; 'given the principal is most important, who do teachers turn to next?' Results needed to answer this question are shown in Table 2.

The results at these two levels are strikingly similar. Teachers at both levels turn to a variety of personnel as a second source of information after the school principal. About a

TABLE 2
Percentage of Second Most Influential Linkers After the School Principal
Primary and Secondary Schools

	Vice Principal	Department Head	Librarian	Teacher	Other	No Listing
Primary (N=98)	29	22	13	12	6	17
Secondary (N=43)	30	23	9	14	5	19

$X^2 = 2.91, ns$

Note: Figures in the Table are percentages; read across.

third named the vice principal, one-fifth a department head, one-tenth the school librarian, and one-eighth a classroom teacher. The similarity suggests that there are certain patterns of communication in schools which are replicated across school levels.

Key Linkers in the Secondary Schools

Table 1 shows that, amongst respondents from secondary schools, head of department (31 percent) and librarians (26 percent) were the most often nominated as most influential communicators of new information. The next three most influential linkers after each of these positions is summarized in Table 3.

TABLE 3
Patterns of Linkage Within Secondary Schools

(1) Head of Department as Most Influential Linker (N=64)

Ranking of Influential Linkers	Principal	Vice Principal	Head of Department	Librarian	Teacher	Other	No Listing
Second	8	9	31	9	23	3	16
Third	5	17	9	13	19	8	30
Fourth	3	5	5	5	11	5	67

(2) Librarian as Most Influential Linker (N=52)

Second	10	12	60	--	6	--	10
Third	10	10	23	--	17	--	37
Fourth	4	6	10	--	15	2	61

Note: Figures in the Table are percentages; read across.

A head of another department is the second most important linker for 31 percent of the subgroup of secondary teachers who placed a head of department as top knowledge communicator. Fellow teachers were the next largest group, 23 percent, of second-ranked linkers.

At the lower ranks, the range of personnel became involved; no distinct pattern stands out. From what had already been presented, the large proportion of teachers in this subgroup who gave no responses in the third and fourth ranks is expected. An interesting feature is that, for 30 percent of this subgroup, two head of department are the two most important linkers. This is a reflection of the structural arrangements in Victorian secondary schools; teachers

tend to work in at least two subject areas. Department heads have a general responsibility for the planning and implementation of courses within the subject area across the school. They also have responsibility for assisting staff working in the subject area, both teachers and any support personnel. Anecdotal data suggests that young teachers, in particular, often turn to heads of department for advice and assistance with classroom related problems.

In the cases where the librarian was nominated as the most important linker, a head of department was the choice of 60 percent of the respondents. There are therefore a high proportion (15 percent of the sample) of secondary teachers whose pattern of linkage is librarian (first), and a head of department (second).

As with the previous case, there is a diversity of third and fourth rankers. The 'No Listing' category at this level is high, as before, with 37 percent of the subgroup giving this response for third ranking, and 61 percent for the fourth ranking.

Clusters of Communication Responses

A related aspect to these data was whether certain patterns of communication were constantly repeated among respondents. To answer this two cluster analyses were performed, one for respondents in primary schools, the other for those in secondary schools.¹

After the two clustering procedures were analyzed, comparisons were made between the final groupings for primary school respondents and for secondary school respondents. The results are summarized in Table 4, where descriptions of the terminal clusters are given, and the percentages of respondents in each of the terminal clusters is indicated for the two levels of schooling. Each description results from an analysis of the communication patterns of the cases within the cluster. The major criteria were; the Within-School Linkers nominated, the ordering of the nominations in importance, and the number of 'no listings' in the pattern. The clusters have been presented in Table 4 according to the degree of dependence on the school hierarchy for within school communication. Given the data presented earlier, it was not a surprise to find the influence of the principal dominating some of the clusters. These are labelled A1, A2 and A3. Differences between these groups, however, were not at all obvious before the clustering information became available. These data suggest at least three sets of cultural arrangements within which the principal plays a dominant role.

As we move from these clusters to those labelled B, C and D, those lower in the school hierarchy become more influential. Nevertheless, the principal still occupied a key role in supporting within school linkage. It is only in Clusters B2 and E that principals or vice principals are rarely mentioned, and one of these groups, Cluster E, was composed of respondents who said that no one in their school provided relevant information about educational investigations and their implications for curriculum.

For primary school respondents, the most repeated pattern was Cluster A2; 40 percent of respondents gave this combination of Within-School Linkers. Thus, the most likely linkage influence was strongly hierarchical, with a reliance on two or three senior staff members. The second most-given combination was Cluster B1, a reliance on middle ranking members of the school staff as the most important linkers. In this Cluster, principals were often listed lower down the order.

¹The clustering program used was part of the BMDP-79 series developed by the Health Sciences, School of Medicine, University of California, 1979. There is no statistical test to assist in the decision to select terminal clusters. Rather, inspection of the percentage increase in error variance is suggested. In both analyses, eight terminal clusters were selected. For the primary level sample, the decrease from eight to seven clusters resulted in an increase in error of 10.4%, compared with error increases of 1.1%, 2.3%, and 2.8% for the previous amalgamations. The comparable values for the secondary school sample were 7.3%, 1.6%, 0.4%, and 1.2%.

TABLE 4
Final Clusters for Respondents in Primary and Secondary Schools

Cluster	Description	Percentage of Primary Respondents (N=203)	Percentage of Secondary Respondents (N=204)
A1	<u>Hierarchical. Single Entity.</u> Teachers in this group consulted one person only for access to new knowledge. This person was almost always the school principal.	14	14
A2	<u>Hierarchical. Incomplete.</u> The vast majority in this group relied on two or three members of the school hierarchy for new knowledge. The principal was the most important linker, supported by others lower in status as second and third linkers.	40	12
A3	<u>Hierarchical. Complete.</u> These were similar to A2, except that all spaces were completed on the question item by A3 members. In both A2 and A3, fellow teachers were rarely listed.	10	8
B1	<u>Middle Rankers, Incomplete.</u> A dependency on two (or three) middle ranking people, such as heads of department and librarians. If the principal was listed h/she was lower in order.	17	16
B2	<u>Middle Rankers. Complete.</u> Head of Department important First and second rankings often occupied by teachers in a list almost always contained four persons. Staff ranked above head of department rarely included.	5	31
C	<u>Mixed Hierarchy. Complete.</u> Teachers listings intermingled with those in the hierarchy. All four places on the list completed.	No cluster	10
D1	<u>Reverse Hierarchical. Incomplete.</u> Teachers or librarians were nominated as most important linkers by this group, who listed either two or three people. Those higher in status in the school were placed at the bottom of the listing.	5	No cluster
D2	<u>Reverse Hierarchical. Complete.</u> Similar to Cluster D1, except that all four people were always listed. Teachers were often placed in the top position in the listing.	6	6
E	<u>No Nominations.</u> No linkages specified to any of the four positions in the list.	3	3
		100	100

For the secondary school respondents, the most repeated pattern was Cluster B2. This Cluster contained cases with a mixture of head of department and teachers in the profiles. The emphasis on this combination is shown by the fact that the next most reported cluster is B1, differing only from B2 in the extent to which the four spaces of the check-list item had been completed.

Comparisons across schooling levels are of interest. Clusters A1, A3, B1, D2 and E contain similar proportions amongst secondary school and primary school respondents. Cluster C was not present in the analysis of primary school cases, and Cluster D1 was not present in the secondary school clustering. The large percentage differences in Clusters A2 and B2 are noteworthy.

CONCLUSION

Teachers within a given school use a range of people to obtain data about new educational knowledge. However, it is clear that the principal is a key figure in the existing arrangements for within school knowledge dissemination. In the primary school, his/her influence is very strong. In secondary schools, there is a two-level effect, in which librarians and heads of departments play an important role.

A most important finding is that that many teachers do not belong to an extended network of knowledge communicators in their schools. At this stage it should be recalled that the focus for this investigation was sources of information from outside the school. There are some who would argue that the internal context of a school provides sufficient information from which the school can frame its policies and programs. However, other data collected in this study suggests that teachers are keen to gain access to a wider range of knowledge, but often need assistance from more experienced and more powerful school colleagues. While some are obviously obtaining it through the range of patterns outlined, others are not. The development of a school climate whereby staff are encouraged to use such information and have access to it is a major task for school leaders.

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