Pergamon

Learning and Instruction 12 (2002) 305–322

Learning and Instruction

www.elsevier.com/locate/learninstruc

‘Learning to learn’: teachers’ conceptions of their supporting role

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Abstract

There is a general consensus in the educational community that ‘learning to learn’ is an important educational goal. Despite this consensus, it is not clear how ‘learning to learn’ is or should be implemented. Actually, teachers are using ‘learning to learn’ in many different meanings and it is being implemented in many different variations. We interviewed 53 secondary schools teachers about their subjective interpretations and the way they implement ‘learning to learn’. According to Hounsell (Higher Education 8 (1979) 453), two groups have been distinguished: a group of teachers having a broad vision about ‘learning to learn’ and a group of teachers with a narrow vision. These two groups are described in terms of their functions, task conception, conception of the learning process and the students and their instructional approach.

Keywords: Learning strategies; Learning to learn; Teaching; Educational innovation; Interviews; Teacher opinions

1. Introduction

Nowadays the public interest in ‘learning to learn’ is considerably increasing. Educational ‘experts’ agree that teachers should teach students how to study and that

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0959-4752/02/$ - see front matter
PII: S0959-4752(01)00024-X

students should be urged to use higher order cognitive strategies (Blumenfeld & Meece, 1988). It is generally accepted that schools and teachers should not restrict themselves to the presentation of information but also teach students how to process this information to construct knowledge (Weinstein & Mayer, 1986). The growing attention on teaching students how to learn, i.e. 'learning to learn', is in line with research on cognitive and metacognitive strategies. Research has shown that the ability to use a variety of cognitive and metacognitive strategies is important to be successful in many types of learning and study tasks (Pintrich & De Groot, 1990; Pintrich & Garcia, 1991). The attention on 'learning to learn' is also stimulated by the policy in the Dutch speaking part of Belgium which imposed 'learning to learn' as one of the objectives for secondary schools. It is stated that schools and teachers have to spend time on 'learning to learn' throughout all the different subjects.

In this article, the problems created by the complexity and vagueness of the concept 'learning to learn' are described. To clarify and to solve some conceptual problems, a study about different ways in which teachers make use of the concept 'learning to learn' was set up. In the first part of the article, the most important theoretical concepts are explained. After a description of the research design and the methodology, two groups of teachers and the way they perceive 'learning to learn' are described. At the end a discussion is provided.

2. 'Learning to learn': a complex concept

'Learning to learn' is often used as a magic formula to meet the increasing informational demands of society and technology. Although 'learning to learn' should be an important part of daily life in secondary schools and classrooms, it turns out to be a very difficult goal to achieve. For most schools and for most teachers it is not even clear how 'learning to learn' should be operationalised and implemented. Teachers use the concept in many different meanings and define the concept in individual and idiosyncratic ways.

Also in the literature there is no general agreement about the definition of 'learning to learn' (Candy, 1990). It is described as a multidimensional entity whose meaning varies according to the meaning given to the word learning (Candy, 1990; Gibbons, 1990). 'Learning to learn' could be described as "a skill, or more plausibly as a package of skills, involving study skills, critical analysis, time management, planning, goal setting and so on" (Rawson, 2000, p. 225). But it is emphasised that there could be differences in scope. The skills could be study skills of a learner undertaking a fairly structured program or a skill set of a self-managed learner (Rawson, 2000). Although there is no clear definition, there is a growing emphasis that 'learning to learn' should be more than the enhancement of study or survival skills (Smith, 1990).

Given the existing variety in the operationalisations both in practice and in the literature, it is important to document the different interpretations and reactions of those involved in the implementation of such a complex project. In this article, we concentrate on the different interpretations and definitions teachers give to 'learning to learn'.

3. Theoretical framework

How 'learning to learn' should be implemented in daily school life is still a point of discussion. One option is to organise isolated courses (i.e., courses outside the context of the regular subjects) to teach learning strategies, such as learnable techniques for selecting information, for building connections, and so on (Mayer, 1988). The effectiveness of such courses has been seriously questioned. Some studies concluded that isolated courses are efficient (Biggs & Rihn, 1984), while other studies indicated that such courses are not (Ramsden, Beswick, & Bowden, 1986). Some doubts exist about the potential for transfer. Many students perceive and experience these courses as isolated from their regular courses; they do not connect what they learn in such a course to their daily way of studying other courses (Simons, 1987). There is also an indication that such study courses often are limited to some general advice and practical tips (Gibbs, 1981) or to the training of general learning techniques and strategies (Derry & Murphy, 1986; Hamers & Csapó, 1999), which result in small or no effects at all.

Nowadays, the educational community agrees that 'learning to learn' cannot be taught in a separate course but has to be embedded in regular courses. As a consequence, individual teachers should pay attention to 'learning to learn' in their courses and teach how the particular subject matter has to be studied (Elshout-Mohr, 1992; Ramsden et al., 1986; Weinstein, 1994). The advantage is that students can practice with the regular subject material, which guarantees to some extent the occurrence of transfer.

The difference between the 'isolated' and the 'embedded' way of implementing 'learning to learn' refers to the place where it is addressed: outside or inside regular courses. For many researchers, the discussion about the implementation of 'learning to learn' ends with a plea for an embedded approach. On the other hand, we argue that the efficiency is more determined by the way 'learning to learn' is 'put into practice' than by the fact of whether it is organised outside or inside regular courses. As is the case for the isolated approach, also in the embedded approach teachers can restrict themselves to some general advice and vague learning tips. If teachers operationalise 'learning to learn' in this way, the same limitations as for the isolated approach will apply. To obtain a real embedded approach, teaching knowledge and teaching students how to process the information has to be integrated. Therefore, our purpose is to broaden this discussion and to analyse different ways in which teachers think about 'learning to learn' and report how they implement it during their regular classroom activities.

Our general hypothesis is that teachers' opinions and practice about 'learning to learn' are linked to Hounsell's (1979) distinction between a broad and a narrow conception of 'learning to learn'.

3.1. Broad versus narrow vision of 'learning to learn'

In our analysis we follow the distinction made by Hounsell (1979) between a broad and a narrow vision on 'learning to learn'. The difference between a broad

and narrow vision is related to the aim one wants to achieve. A narrow interpretation of 'learning to learn' concentrates exclusively on study skills, strategies and techniques. In contrast, the aim of 'learning to learn' in a broad sense is to promote the use of higher order cognitive skills, such as problem solving and information-processing strategies. In the second case, learning becomes a goal on its own and it is not considered by the students only as a means to achieve some particular objectives. Such teachers want their students to become lifelong learners. "One conception [the narrow one] tends to emphasise the acquisition of skills and is concerned with means, or techniques; the other ['learning to learn' in the broad sense] tends to emphasise an awareness of purpose, and is concerned with ends, and the individual's relationship to those ends" (Hounsell, 1979, p. 461). 'Learning to learn' should include more than merely giving some techniques and strategies to process subject material.

According to Hounsell (1979) "a shift towards more student-centred teaching" could be a reason for broadening the concept 'learning to learn'. The growing attention for 'learning to learn' (in the broad sense) must be understood against the background of the 'restructuring movement' (Murphy, 1991). In the 'restructuring movement', a different definition of learning is used: "A shift in the operant model of learning is a fundamental dynamic of restructuring schools…. The behavioral psychological model that highlights the innate capacity of the learner is replaced by 'cognitive or constructivist' psychology and newer sociological perspectives on learning" (Murphy, 1993b, p. 116). A new vision on learning implies redefining the roles of teachers and students (Candy, 1990; Hargreaves, 1994; Murphy, 1993b). A more central role is assigned to the students. They are considered as "active constructors of their own understanding" (Murphy, 1993a, p. 12). This implies that "the traditional emphasis on acquiring information is replaced by a focus on learning to learn" (Murphy, 1993a, p. 13).

For distinguishing different groups of teachers according to their vision on 'learning to learn' we believe it is important to take into account the teachers' opinions regarding the functions for which 'learning to learn' is used. To gain insight in teaching behaviour, it is equally important to study the opinions teachers have about teaching and learning (Boulton-Lewis, Smith, McCrindle, Burnett, & Campbell, 2000; Clark & Peterson, 1986; Hativa, 1997). Teachers implementing 'learning to learn' (in the broad sense) not only have to change their teaching activities, but also their assumptions about teaching and learning (Kember, 1997; Trigwell, Prosser, & Taylor, 1994). "These changes will obviously not come easily. It is increasingly evident that implementing the learning-to-learn idea requires examination and modification of deeply ingrained assumptions, values and habits" (Smith, 1990, p. 25).

Teachers differ from each other with respect to the different functions they use 'learning to learn' for. According to Van den Houte (1992) 'learning to learn' can be used to fulfil three different functions. First, there is the supportive function, where the ultimate goal of 'learning to learn' is to improve the students' results on exams and tests. Teachers who use 'learning to learn' in a supportive way, want their students to obtain better grades and learning results. The second function is the remedial one. The aim here is to remedy learning problems. Finally, in the developmental function, 'learning to learn' is used to teach how to process new information.

Such teachers try to make their students familiar with information-processing or problem-solving strategies, so that they can solve new problems or process new information. They want their students to enjoy learning and to be intrinsically interested in what they are studying.

We expect that teachers who ascribe a developmental function to 'learning to learn' have different opinions on the role of teachers, the role of students and also a different definition of the learning process, compared with teachers who use 'learning to learn' in a supportive or remedial way.

A change from a supportive or remedial vision on 'learning to learn' to a developmental function requires a shift in the teachers' perceptions of their task (Howarth, 1997). It could be expected that teachers with a broad vision consider themselves as guides, facilitators or coaches of the students' learning processes (Bonk, Oyer, & Medury, 1995; Prawat, 1992) and less as transmitters of subject material (narrow vision). A broader view of 'learning to learn' could also imply a different conception of the learning process. In the broad sense of 'learning to learn', learning is considered "as an intensely personal activity characterised by a search for meaning and understanding" (Hounsell, 1979, p. 461) and as an active and constructive concept (Shuell, 1996). In the narrow sense of 'learning to learn', learning is conceptualised as the accumulation of facts or information (Boulton-Lewis et al., 2000) or as a quantitative increase in knowledge (Marton & Saljo, 1984). In contrast to the passive role which was attributed to students in the past (narrow vision), teachers with a broad sense of 'learning to learn' consider students as active processors of information.

We also expect these two groups of teachers to have a different instructional approach. This refers to all the activities a teacher does with the purpose of actively involving the students in the teaching and learning process. Two extreme positions can be distinguished: teachers perform all the learning activities themselves (teacher-initiated) or teachers stimulate the students to execute some learning activities (learner-initiated) (Vermunt & Verloop, 1999). Shuell (1996) distinguished a range of learning activities that can be performed by teachers or by students. For example, a teacher can give schemes to the students, or can stimulate the students to make schemes for themselves. When broadening 'learning to learn' there should be a shift from teacher-initiated activities to learner-initiated activities.

Our hypothesis is that teachers with a supportive or remedial function share the same narrow vision on 'learning to learn'. The group of teachers with a developmental function is expected to have a broader vision of 'learning to learn'. The different aspects of a broad and narrow vision of 'learning to learn' are presented in Table 1.

4. Empirical study

To investigate whether we can find Hounsell's two groups of teachers (with a broad versus narrow vision of 'learning to learn') a study was set up. Our purpose was to look for and to describe these two distinctive groups of teachers based on the opinions teachers have about the different aspects described above. Throughout

Table 1
Various aspects of the broad and narrow vision on 'learning to learn'

	Broad vision	Narrow vision
Functions	Developmental function	Supportive function Remedial function
Task conception	Guiding and goading students	Transmitting knowledge
Conception of the learning process	Learning: active process, exploring	Learning: accumulation of facts
Conception of the students	Active	Passive
Instructional approach	Students are responsible for their learning activities	Teachers take over the learning activities

interviews we tried to record the different perceptions secondary school teachers have about 'learning to learn' and related conceptions (cf. supra).

4.1. Research design

The study was conducted in five Flemish secondary schools. In secondary schools, a tendency exists to restrict 'learning to learn' activities to younger students (Tabberer, 1987). Many isolated courses are only organised for younger students and it can be expected that teachers who teach younger students are more concerned about 'learning to learn'. The age of their students may determine the way teachers think about 'learning to learn'. We therefore focused on teachers of the seventh/eighth grade (ages 12–14) and of the eleventh/twelfth grade (ages 16–18). As the subject matter creates a context that can influence teachers' conceptions (Stodolsky, 1993), we took two subjects into account: mathematics and Dutch (native language).

Fifty-three teachers were interviewed (Table 2) of which 26 taught mathematics, while the others taught Dutch. Both for mathematics and Dutch the teachers were equally divided over the different grade levels.

Table 2
Number of teachers

	Grades		
	Seventh/eighth	Eleventh/twelfth	
Mathematics	13	13	26
Dutch	14	13	27
	27	26	53

4.2. Methodology

In accordance with Brookfield (1990), we believe research on 'learning to learn', and especially research on the different meanings given to this concept, should start from the experiences and perceptions of those involved. Brookfield (1990) makes a plea for conducting research on this topic by means of qualitative and, more specifically, phenomenological methods. Experiential descriptions, i.e. content-oriented and interpretative descriptions of the qualitative distinctive ways in which reality is understood, are considered as most important in our study. Because our purpose is to describe and understand the meaning teachers give to 'learning to learn' a qualitative study is appropriate. More specifically, semi-structured interviews are most obvious. "The focus is on nuanced descriptions that depict the qualitative diversity, the many differences and varieties of a phenomenon rather than on ending up with fixed categorisation" (Kvale, 1996, p. 32).

Before conducting the interviews, we analysed the relevant literature and we visited a school for one week to gain some experience on how 'learning to learn' was put into practice. Both (knowing the literature and getting a feeling of the practical realisation) were necessary in order to ask relevant questions (Kvale, 1996). 'Sensitising concepts' (Glaser, 1978), such as task conception (i.e., the way teachers perceive their task) and conceptions about their instructional approach were used to draft an interview schedule.

4.3. Interviews

In a short introduction, before the interview started, we briefly clarified the purpose of the interview ('informed consent', Glesne & Peshkin, 1992) and asked permission to audiotape the interview. We emphasised the confidentiality of the data to reduce social desirability (Fowler, 1984; Glesne & Peshkin, 1992). We asked teachers to concentrate on one particular class when responding.

Because we wanted to map the different conceptions teachers have about 'learning to learn', the interviews were rather extensive. Teachers were first asked to react to the following statement: "Teachers are said to have a double task: teaching students what they need to know (giving information) and teaching students how they have to process this information in order to acquire knowledge themselves". Thereafter they were asked what they considered to be their most important task and to give an indication of the amount of time they spend on 'learning to learn'. We also asked them if they felt they have enough time for teaching students how to learn.

The interview then focused on the specific ways in which 'learning to learn' was implemented. For a set of cognitive and metacognitive strategies a teacher-initiated and learner-initiated variant were described. For example, for the cognitive strategy 'relating' we asked teachers if they themselves pointed out some connections between different parts of the subject material (teacher-initiated) or if they stimulated the students to search for connections themselves (learner-initiated). Other (meta)cognitive strategies such as structuring, reflecting, evaluating were explored in the same way.

After the interview the respondents were asked if there were other aspects which seemed important to them. Several teachers mentioned additional interesting issues after shutting down the recorder.

4.4. Analysis of interviews

We transcribed as many interviews as possible ourselves in order to obtain a better overview of our data. We checked the interviews we did not transcribe ourselves. While checking the transcriptions, we listened to the corresponding tapes to detect important nuances of sound (Mostyn, 1985). Before processing the data, we read all the transcribed interviews, so that an 'immersion' in the data took place (Mostyn, 1985). Getting a total overview of the data is a first important step (Glaser, 1978) for which we took the time needed.

Reducing the data is the first step of qualitative data processing (Miles & Huberman, 1994). In order to have access to the data, interviews have been coded according to a preliminary list of codes. In the initial phase, the coding corresponded to the interview questions (descriptive codes; Miles & Huberman, 1994). We used, for example, a descriptive code for task conception, instructional approach, etc. We went through the interviews and a code was given to each relevant fragment. During this phase we used FYI-3000-Plus (Kimmel, Jones, Brogden, & Brogden, 1986), a computer program for qualitative data processing. The program was helpful for structuring, saving and copying the raw material.

During the second step the reduced data were displayed in a matrix in which the rows were formed by the individual teachers and the columns by the descriptive codes (such as task conception). Each cell gives a short citation or description of the material (if present in the interviews). This matrix allows us to get an overall picture of each teacher's perception of 'learning to learn'. The purpose of this presentation was to find some ways of distinguishing groups of teachers who differ regarding the way in which they think about 'learning to learn'. Actually, it was not easy to find any structure in the mass of information.

After rereading the interviews, it became apparent that the different purposes used by the teachers for 'learning to learn' are central. Teachers differ from each other with respect to the different functions they ascribe to 'learning to learn'. The functions of 'learning to learn' received the status of 'core variable' (Glaser, 1978) or 'key concept' (Mostyn, 1985). Other variables relating to the core variable were distinguished, such as task conception and conceptions about learning and teaching. Starting from the 'core variable' we drew up a theoretical framework (cf. supra, Table 1). With respect to the validity it is important to have a good theoretical picture of the research object (Kvale, 1996) and to confront the findings with earlier results and theoretical indications. "The validity of the concepts and categories established depends partly on logical analysis, partly on the match with previous research findings, and partly on the extent to which the categories provide an accurate description of 'recognisable reality'" (Entwistle & Entwistle, 1991, p. 210).

It became clear that our framework integrated different existing theoretical understandings in a more global theory. This is typical for a 'grounded theory': "The

grounded theory is transcending. This model takes those relevant variables from competing theories that fit and work, while always trying to raise their conceptual level by reducing them to a higher level with a smaller set of concepts. It does not deal with theories but simply relevant variables from wherever and integrates them into a broader theory" (Glaser, 1978, p. 14–15). It is important that the theory fits, i.e. connects with the data, that it works, i.e. explains what happened, and that it is relevant (Glaser, 1978).

After constructing the theoretical framework (see Table 1), we went again through the interviews and we coded the interviews with respect to the relevant variables. The relevant variables are the different functions 'learning to learn' is used for, the conception teachers have of their tasks, their conceptions about the learning process, the students, and their instructional approach. A code was given to each relevant fragment. Through this process, other discriminating variables emerged. For each teacher, a matrix was built containing all relevant variables in the rows (Miles & Huberman, 1994). A coded interview fragment was placed in one of the two columns depending on whether the content belongs more to the broad or to the narrow vision. These matrices made it possible for us to ascribe the teachers to one of the two groups.

5. Empirical data: broad and narrow vision of 'learning to learn'

A description of the group of teachers who have a narrow vision is followed by a description of the teachers with a broad vision. As two teachers pay no attention at all to 'learning to learn', all data refer to 51 teachers.

5.1. Teachers with a narrow vision

5.1.1. Functions

Within the group of teachers who have a narrow vision, we were able to make a distinction between teachers who refer to a supportive function and teachers who focus on the remedial function of 'learning to learn'.

5.1.1.1. Supportive function. Twenty-two out of 51 teachers use 'learning to learn' in a supportive way. Those teachers try to influence the learning outcomes of their students. For these teachers 'learning to learn' is limited to mere tips and advice in order to prepare examinations or tests: "It's only logical that you pay some attention to it, isn't it? Telling them when there will be a test, how they should study for the test" (T7/D78).[1] These teachers indicate that 'learning to learn' is only important when students obtain bad results: "Yes, especially when there is a bad test, then

[1] This is a fragment from teacher 7, who teaches Dutch (D) in grades 7 or 8. Teachers who teach mathematics are referred to with a letter (M), teachers who teach in grades 11 and 12 are referred to with the number (1112).

there is really some need and that is when I use ‘learning to learn’ for a certain part of the subject material” (T9/D78).

5.1.1.2. Remedial function. Fourteen teachers (out of 51) use ‘learning to learn’ in a remedial way. For these teachers ‘learning to learn’ is a means to solve learning problems: “I find it a good approach in case of problems (…) but I do not use ‘learning to learn’ if there are no problems” (T5/M1112). If such teachers notice that their students are studying in a wrong way, they say they give them some tips about how to study the subject content (in a right way).

Sometimes it was difficult to make a distinction between the supportive and the remedial function of ‘learning to learn’. However, none of the teachers of the two groups consider ‘learning to learn’ as a primary goal (see below). While the teachers of the supportive group focus on the students’ results, the teachers of the remedial group want to solve problems. The distinction is not always that clear, however, because the remedial teachers also consider improving the results of the students as an important objective and bad results may result from learning problems. In both groups, we find indications that ‘learning to learn’ is mostly linked to examinations and tests. The students’ results indicate to the remedial teachers how much attention they should pay to ‘learning to learn’. In compliance with the theoretical framework, these two groups of teachers are expected to be similar on a number of variables. Hereafter we will take the supportive and remedial groups together, and consider this group (n=36) as having a narrow vision on ‘learning to learn’.

5.1.2. Task conception

For 36 out of 51 teachers, teaching how to learn seems of minor importance. They do not consider it as an essential part of their task. It is a means to achieve a certain goal but it is not a goal on its own. All teachers, except four, reported not having enough time for ‘learning to learn’. They experience a strong pressure of curriculum coverage. According to these teachers, the curriculum is so overloaded that there is no time left: “We have a rather extended curriculum for mathematics. So we must go on, and on. The curriculum is really overloaded. Therefore I pay only very little attention to ‘learning to learn’” (T35/M1112). Besides, in the group of teachers who stressed information transmission, many teachers reported both tasks to be of equal importance. For them ‘learning to learn’ is a way to teach students how to process the content. They consider ‘learning to learn’ in itself as not important: “Oh, both tasks are equally important (…) I find it important to help the students and to provide them with tips how to process the subject material at home” (T8/D78). Other teachers consider ‘learning to learn’ as important when the students are poor learners (cf. infra) and the curriculum is not too extended. Because transferring as much information as possible is less important in these particular classes and because they believe weak students need some guidance in how they should study, these teachers give some learning tips and advice. We may conclude that for these teachers ‘learning to learn’ is of less importance.

5.1.3. Conception of the learning process

Teachers with a narrow vision of 'learning to learn' believe they have to tell their students how to study and process the learning material. These teachers define 'teaching' as transferring as much information as possible and 'learning' as absorbing all that information. In the interviews we found many references to 'telling' or 'indicating', "*Do you pay some attention to how the students have to study the learning material?* Yes, I do. When part of the subject material is done, I tell them: 'I want you to know it in this way'. And I always tell them what is important. I tell them how they have to process it" (T41/D1112).

These conceptions correspond with the simple theories of Fox (1983), with the first theory of teaching as described by Ramsden (1992) and with the 'teacher focused strategy' of Prosser and Trigwell (1997). According to Ramsden's first theory and the 'teacher focused strategy', teaching is defined as 'telling or transmitting' a large amount of information. Teachers consider themselves as experts in their subject. The first simple theory of Fox (1983) is called the 'transfer theory'. Teachers define knowledge as "a commodity which can be transferred, by the act of learning, from one container to another as from one location to another" (Fox, 1983, p. 152). Teaching means merely transmitting information. The essential point in these simple theories is that the teachers are in control of the teaching as well as the learning process (Prosser & Trigwell, 1997).

5.1.4. Conception of the students

These teachers also believe that students are not capable of organising their learning activities. Teachers of younger and of older students share this opinion. According to these teachers, students are considered to be dependent, receptive, passive and helpless.

5.1.5. Instructional approach

Teachers with a narrow vision about 'learning to learn' report that they have a tendency to take over all or most learning functions. One teacher, for example, gave the following response to the question whether he taught students to detect relationships between different courses or not: "Not really, because I think I tell them from the beginning what the relationship is" (T7/D78). For a number of teachers (15 in total), we found indications that they also stimulate the students to do some of the learning functions by themselves. However, this is limited and there are also indications that they themselves take over a lot of the learning functions.

5.1.6. 'Learning to learn': something for younger students and poor learners[2]

According to these teachers 'learning to learn' is especially intended for younger (i.e., students of the seventh and sometimes eighth grade) and for poor learners. For the others (i.e., the smart and older students) 'learning to learn' does not seem to

[2] This is an aspect we did not describe in our theoretical framework. Through the analysis of the interviews this aspect re-appeared in the data.

be necessary. These students are expected to know already how to study: "I have the impression that smarter students do not really need 'learning to learn' and will find on their own a way to organise the material they have to study. But the majority of the students, and I think especially students who are less smart, need guidance in how they should work, study and execute some tasks" (T9/D78).

5.2. Teachers with a broad vision

Fifteen teachers have a broad vision on 'learning to learn'.

5.2.1. Functions

5.2.1.1. Developmental function. Teachers who use 'learning to learn' in a developmental way endeavour to develop attitudes and skills which are important outside the school and classroom context (Van den Houte, 1992). These teachers say they teach their students some higher order thinking skills. They consider imparting information as less important: "Most important is of course, not the accumulation of information, as students can find it elsewhere, but that they learn to work with insight, that they can use their brains" (T46/M1112). For other teachers (all teachers of mathematics), the most important goal is to teach problem-solving skills to the students: "I don't know if that is what is being called 'learning to learn'. Because that always makes me think of how to acquire knowledge? For mathematics it is also: how to find the solution to a problem" (T16/M1112). For those who teach Dutch, 'learning to learn' also means teaching students information-processing strategies. For many teachers it also means teaching the students how to process new information, i.e., information not dealt with in the classroom.

5.2.2. Task conception

For many teachers in this group 'learning to learn' seems to be very important: "I even find 'learning to learn' more important than knowledge" (T28/D78). They report they try to teach students how to process information: "It (the attention to imparting information and to 'learning to learn') should be fifty-fifty. That is my strong belief. Most of the attention should be focused to 'learning to learn' because you can be informed about the rest by encyclopaedia, video and other media" (T12/M78). For the majority of these teachers, it is not a problem to find time to teach students how to learn. These teachers "make time for it". They are not solely directed towards transferring knowledge, but also towards giving their students some methods of processing knowledge. Other teachers do not feel like 'making time' for it, because they do not feel bound by the curriculum. Other teachers emphasise it is not necessary to make time for it, because 'learning to learn' is totally integrated in other activities one is dealing with during the courses.

5.2.3. Conception of the learning process

As opposed to teachers with a narrow vision, these teachers report they do not explain to their students how they should study; but they let the students handle it

themselves. They believe learning is most efficient when the students have the opportunity to learn from each other: "*Why do you consider it important that students say it in their own words?* Because I have the impression that students sometimes develop new methods on their own and I believe that students who have difficulties, will accept something from another student more easily than from me" (T16/M1112). According to them, students will learn more efficiently when they can explore and find out things by themselves: "I try to let the students explore a lot of things. I do not always say: 'This is most important.' Because then it is only more knowledge. They only memorise the most important things. I let them discover which formulas are really important" (T16/M1112). The teachers also emphasise the importance of collaboration between them and the students.

These teachers have a developed theory about teaching as described by Fox (1983). In Fox's 'travelling theory', teachers are considered as guides who show students the way and indicate the right direction. Teaching and studying is like travelling and a subject is like one of the many scenes one can explore. The guides may help the students explore but they cannot do it in the students' place. "Education is a journey. But it is a journey of exploration, not a direct trip from A to B. The teacher is a local guide and equipment supplier, not a coach driver on a packaged tour" (Fox, 1983, p. 157). Ramsden's third theory of teaching (1992) 'teaching as making learning possible', is analogous to the 'student focused strategy' of Prosser and Trigwell (1997). For these teachers, teaching means to collaborate with students in order to induce real 'understanding'. Students have to be actively involved in their own learning process.

5.2.4. Conception of the students

These teachers believe students are able to process subject content autonomously. They believe in the capacities of their students: "I think most of the pupils we have in our school are capable of processing the material independently" (T20/D1112).

5.2.5. Instructional approach

These teachers believe students are responsible for certain learning activities and for the learning process. They indicate they let the students make schemes and let them take notes themselves, instead of doing it for them: "If it's necessary that there are some schemes, it is my belief that you have to let them do it by themselves" (T29/D1112).

5.2.6. 'Learning to learn': a personal growth process

Teachers with a broad vision consider 'learning to learn' as a personal and continuing process which means that each student has an individual way of studying which develops idiosyncratically: "There is always the fact that some have to write while others have to talk aloud. It is not possible to treat the whole class alike. I always tell them to search by themselves. I can say what I think is easy, but another child does not have to agree with that" (T52/D1112). Teachers try, therefore, to motivate the students to develop a personalised way of studying: "I let them find their own system. I don't think that we should impose all that. I'm not the expert. I'm not

going to say how it should be done. No, it's also important that they search as well" (T49/D1112).

Another facet is that these teachers — in contrast with the narrow group — consider 'learning to learn' as something that should occur not only in the lower grades but also in the higher grades. In higher grades students have to study in a different way. The implication is that for these teachers 'learning to learn' remains important in the higher grades: "*Do you believe older students need someone who is teaching them how to learn?* Yes, of course, especially because it evolves. (…) They have to be guided" (T29/D1112).

5.3. Differences between subject, grade and teaching experience

Seventy-one percent of the teachers have a narrow vision about 'learning to learn' compared to 29% who have a broad vision. The grade might have a determining effect on the way teachers think about 'learning to learn'. One can expect that teachers who teach in the lower grades would give less responsibility to their students. We expect a difference in the number of teachers having a broad or a narrow vision as a function of the grades in which they teach. Also the subject taught by the teachers might have an influence (Boulton-Lewis et al., 2000). Stodolsky (1993) argues that subjects could determine the assumptions teachers have about teaching and learning. However, we cannot find evidence for these assumptions [(subject: $\chi^2(1)=1.456$, ns) and (grade: $\chi^2(1)=1.517$, ns)].

Furthermore, one could argue that there is a relation between teaching experience and the teachers' vision on 'learning to learn'. Huberman (1988) connects the age of teachers with the evaluation of innovations. Older teachers value innovations less positively than their younger colleagues. On the other hand, there is evidence that experienced teachers agree more with the developed theory of Fox (1983) than less experienced teachers (Sheppard & Gilbert, 1991). Taking into account the similarities of the developed theories with the broad vision of 'learning to learn', we may expect a difference in teaching experience between the two groups. The average age of experience of the narrow group is 22.75 years, the broad group has an average of 18.6 years of experience ($t(49)=1.6$, ns). The difference is not significant.

6. Discussion

'Learning to learn' is an important educational goal to which much attention is given. However, it is striking to see that various meanings are given to this concept. Two groups of teachers have been distinguished according to the functions used for 'learning to learn' and the meaning they give to that concept. These two groups are (for a number of variables) very similar to other distinctions made in the literature, such as the distinction Fox (1983) made between simple and developed theories, the subjective theories of Ramsden (1992) and the strategies Prosser and Trigwell (1997) distinguish. All these theories concern general assumptions about the teaching pro-

cess and the roles of students and teachers. The correspondence of our distinction with other independent studies strengthens our analyses.

Because we described the two groups separately (first the teachers having a narrow vision followed by those having a broad vision), we may have created the impression that some well-defined and rigid boundaries exist between the two groups. In many studies about teaching conceptions this seems to be the case (Kember, 1997). In reality, there are no such boundaries. Most studies on teaching conceptions demonstrate that one can have characteristics from both groups (Kember, 1997). It cannot be expected that a teacher has all the characteristics from one group, but most of the time a dominance of one particular type occurs (Boulton-Lewis et al., 2000).

In accordance with Kember (1997) we consider the two groups as a set of qualitative ordered concepts. The analysis makes clear that the distinction can only be made on qualitative grounds, rather than quantitative. The amount of attention given to 'learning to learn' is not crucial — although it is also important — but the different meanings given to 'learning to learn' and the different operationalizations are important.

The majority of teachers have a narrow sense of 'learning to learn'. In the opinion of these teachers 'learning to learn' is limited to giving tips and general advice, mostly to younger and less able students (cf. Hounsell's (1979) distinction between study skills and 'learning to learn'). A minority of teachers have a broader vision on 'learning to learn'. This could be due to the perceived tensions between desirable goals such as 'learning to learn' and the general teaching and learning context which remains stable (Hargreaves, 1994). Society imposes lots of changes but the structure of schools and education does not change. The task of teachers is enlarged but the old tasks also remain important. As a consequence, schools and teachers are overloaded (Fullan & Hargreaves, 1992) and under pressure (Hargreaves, 1994; Knight, 1997).

If one wants to talk about 'learning to learn', it seems important not to lose sight of the more general opinions of the teachers. If teachers want to broaden the way in which 'learning to learn' is used, it seems necessary not only to change some activities, but to change more fundamental opinions as well (McKeachie, 1987). If these subjective opinions are not taken into account with regard to an innovation, only some superficial changes will take place. As a consequence, the implementation of 'learning to learn' could result in very disappointing results (Fullan & Hargreaves, 1992; Little, 1993).

In our study we only used interviews, so we have indications about what teachers say they do without knowing if they actually behave in the way they report. A complementary observational study would be very useful. However, as a result of the qualitative study, we were able to get some insight into the diversity of the existing opinions and meanings of 'learning to learn'. Through the study it has become clear that 'learning to learn' remains a very vague concept for teachers. Every teacher has an individual definition and interpretation for this concept. A lack of clarity still exists (Fullan & Stiegelbauer, 1991). This lack of clarity could be the reason why the introduction of 'learning to learn' had only a minimal impact on the teaching behavior. Our study gives reasons to believe that 'learning to learn' "may be in danger of losing some of its power through overuse" (Candy, 1990, p. 57).

This negative influence of the vagueness of the concept has, however, to be nuanced. Because of this vagueness there is the possibility for schools and teachers to give their own operationalisations to 'learning to learn'.

We have tried to clarify the exact meaning of the concept 'learning to learn', taking into account the subjective theories of the teachers who are trying to implement 'learning to learn' as an innovation and translating the concept of 'learning to learn' into the words used by the teachers (Hammond, 1990). Otherwise, 'learning to learn' as a valuable initiative could fall down because of its own success.

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