

Using effective student-centred activities to meet current challenges at Austrian schools

Christian FRIDRICH
Pedagogic University, Vienna

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Resumen

Una forma de hacer frente a los cambios del sistema escolar austriaco consiste en emplear actividades de proyectos en la enseñanza y el aprendizaje. Por una parte tiene que ser visto como algo muy complejo y, por otra, la utilización del término proyecto puede ser considerada como excesiva y abusivamente usada: muchos metodos se denominan inadecuadamente como proyectos y simplemente utilizan el nombre. El artículo muestra de manera sistemática las oportunidades de este método de enseñanza y aprendizaje, destaca como puede hincarse el potenciamento de las competencias y procesos de aprendizaje, y analiza los problemas y limitaciones que pueden aparecer.

Palabras clave: clases de proyectos, enseñanza y aprendizaje orientado a proyectos, formas abiertas de enseñanza/aprendizaje, sistema educativo austriaco.

Abstract

One way of facing the manifold current challenges in the Austrian school system lies in employing project-oriented ways of teaching and learning. On the one hand, these have to be understood as being very complex; on the other hand, the use of the term 'project' can be regarded as overused, i.e., inflationary: Many methods are inadequately referred to as projects, thus names are played with. The following paper systematically shows up the opportunities this teaching and learning method boasts, it outlines how the enhancement of competences and learning processes can be initiated, and also discusses the problems and limitations that may arise.

Key Words: project classes, project-oriented teaching and learning, open forms of learning/teaching, Austrian educational system.

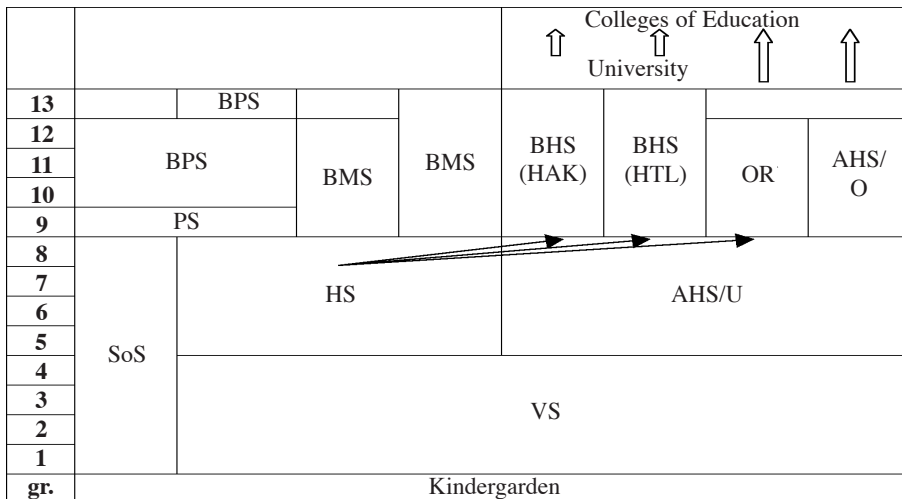
An overview of the Austrian school system

Before moving on to the opportunities, limits and ways of implementing project-oriented teaching methods, please let me give an overview of the Austrian school system for the sake of easier understanding. "The Austrian school system is basically structured according to content (general or vocational education) and according to level of education (compulsory education, medium level, higher level). Thus there is a high degree of differentiation, which may be considered one of the main characteristics of the Austrian educational system.

Kindergarten attended before the age of six is not part of the school system. At the age of six children start primary school (grades 1-4) with some pre-school edu-

cation available for certain children. There are schools for handicapped children (grades 1-8) but there is a growing tendency towards the integration of handicapped children particularly into primary school.

After four years in primary school there are two options: learners have a choice between lower secondary school / Hauptschule (grades 5-8) or the first four years of a ‘grammar school’ / Allgemeinbildende Höhere Schule (grades 5-8). The percentage of students attending Hauptschule has been declining steadily and is currently down to about 70% of the total number of learners in a year. In urban areas the majority of learners opt for Allgemeinbildende Höhere Schule. Although Allgemeinbildende Höhere Schule lasts a total of eight years (grades 5-8, 9-12) a fairly high number of learners leave after the first four years there and change to vocational schools at upper secondary level. Although school in Austria is compulsory for the nine years from six to fifteen another choice must be made after eight years at school.” (Buchberger and Heissenberger n.y.).



List of abbreviations:

- gr.: grade ... Schulstufe
- VS: Primary school ... Volksschule
- SoS: Special school ... Sonderschule
- HS: Lower secondary school ... Hauptschule
- AHS/U: Lower secondary / general ... Allgemeinbildende Höhere Schule Unterstufe
- AHS/O: Upper secondary / general ... Allgemeinbildende Höhere Schule Oberstufe
- PS: Polytechnical school ... Polytechnische Schule
- BPS: Vocational school / compulsory ... Berufsbildende Pflichtschule
- BMS: Vocational school / middle level ... Berufsbildende Mittlere Schule
- BHS: Vocational school / higher level ... Berufsbildende Höhere Schule
- OR: Upper secondary / general ... Oberstufenrealgymnasium

Figure 1. Simplified Diagram of the Austrian School System (design: Buchberger and Heissenberger n.y.; layout: Ch. Fridrich)

Approaching a complex teaching and learning method

Project lessons, an old form of teaching, is going through a renaissance. Mountains of essays, books and project reports are all available. Even the school administration has reacted: project decrees and lots of support offer the teacher useful aid. Project lessons that lead to a changed perception of school in terms of an institution in the teacher–student relationship, would have had to be established in every school a long time ago. This is nevertheless not the case: project lessons and project orientated lessons are still exceptions in everyday life in common schools– maybe because it overworks the schools’ organisational capacity.

Despite this state of friction one still encounters blossoming projects also in their political meaning all of the time. They change old structures, inspect the social structures of those involved, explain latent tensions and in ideal cases they become meaningful in society. Seen this way it would be closed minded to think of project lessons as one method of teaching among many, or in terms of being a democratic method. It is more than that! Namely an over 200 year old practiced method of democratisation.

It appears, that project lessons need these tensions in order to function: here decisions and planning by students, there pre-planning and preparation by the teacher; theoretical foundation on the one hand, creativity and spontaneity on the other are all reflected in this work. All these contemplations add to the social meaning of this unique lesson form.

It will be spoken about project lessons and normal lessons many times in this text, although these are not opposites, they should be supplementing forms of teaching. There would be enough joints. Since the realisation depends on the personalities of the teachers and students, there will not be any exact recipes offered in this essay.

The problem of terminology

Sometimes people say that it is already a project, when only a valuable product is achieved, e.g. when garbage is removed from a brook, although all the students’ actions are controlled by the teacher. It is also a mistake to classify a row of lessons (e.g. dealing with the topic “Immigrants in Austria”) in terms of being a project (compare: Schöpke, 1981). Even the tendency to classify everything in terms of being a project that combines two or more subjects of the curriculum, leads to a misconception of the term “project” at the end and is only terminological juggling (Bie and Louwerse, 1977; Koch, 1988). Duncker and Götz go the same way, when they explain that teacher courses, excursions and leisure time possibilities – their subjective, educational, practical and social relevance should basically not be criticised here – are “sold” as projects. (Duncker and Götz, 1984).

The examples above show that it is much easier to give a negative answer to the question, i.e. to find out what project lessons are not. In order to avoid defining the

term project a list of characteristics is often used, which evaluates the specific lesson, i.e. if the following characteristics such as problem orientation, action centred activities, self organisation, etc. are fulfilled. But even if you compare your lesson with the fictional list of characteristics problems will arise in the broader sense.

Depending on the prevailing perceptive view the sobering conclusion has to be drawn that “no (practiced) lessons are project lessons and at the same time any given lesson can be classified in terms of being (more or less) a project lesson.” (Hänsel, 1988).

And now it will be attempted to make some statements about project lessons with the help of a definition analysis. The word project is derived from the Latin verb “proicere”, which if translated exactly means to “throw forwards”, “throw out”, “throw down” (Langenscheidt, 1977) and is to be understood in terms of projecting, planning and attempting (Dietrich, 1977) This connection between idea and practical realisation goes back to the developers of the project method, such as Dewey, who saw the project as “proiectum”, as a “projected adventure”, where teachers and students work autonomously (Diem-Wille, 1987). Consequently this means that the process and the results of the project cannot be exactly predicted by the teacher. A project can therefore not be repeated like other forms of lessons (Institut für bildungsforschung der wirtschaftsforschung der wirtschaft, 1991). It is unique.

If one understands the historical background of project thoughts, project lessons are much more than just a welcomed change of pace, a reason or “an unusual lesson form” (Geibert, 1989), more than just a method. Because of the central issue of *autonomous, self responsible problem solving* project lessons offer a major contribution to democratisation¹ in society (Schneller, 1986) and school (Gudjons, 1989). This way, project lessons lead to a changing of roles between students and teachers, to an elimination of limitations within the individual subjects, etc., i.e.: to an elimination of important standards set by the school system (Messner, n.y.), and this although it all takes place among school organisation. This is also why project lessons in our school system go through fundamental obstacles, which hinder many teachers from doing projects.

Aspects of project teaching and learning

Since these five terms mean something different, they should be explained with a choice of explanations from the bibliography. This is how you can tell, that first of all, different authors connect different contents with the same term, secondly, that different terms are used for the same contents.

Project: A project is what the project group carries out, i.e. an “exact learning experience” (Frey, 1990) or the “planning and execution of a wide variety of lesson work.” (Böckle *et al.*, 1988).

¹ One of our main goals in terms of school and private education and of political education.

Project lessons: Project lessons are to be understood in terms of the project being a lesson form (Schweingruber, 1984) and at the same time there is a non-existing ideal, in case one judges these lessons with the project-characteristics catalogue (mentioned above), then only show-offs would dare to say that their lessons contain all of these criteria (Hänsel, 1988). In the following essay different forms of lessons will be identified as project lessons, in order to simplify matters.

Project orientated lessons: In these one achieves certain project segments (Nündel, quoted from Oswald, 1982). If some of the parts of project lessons have to be left out² because of school situations or other circumstances, then it is much better to call these lessons project orientated (Gudjons, 1988). Frey uses the term “project similar learning” in the same context (Frey 1990). Other authors speak of project orientated lessons, if additionally to the lack of certain characteristics, the general conditions of the school are not changed (Böckle *et al.*, 1988; Schwendenwein, 1991).

Project methods: Meyer simplifies teaching methodological forms and experience, as lessons where one studies (Meyer, 1988) –or in other words: “the distance, that teachers and students cover, if they want to be educated” (Frey, 1990). This means the achievement of project thoughts in school brought into a project without having them seem just like methods (Gudjons, 1988).

Project work: Project work is defined as the social form in lessons, whereas certain characteristics are fulfilled (Böckle *et al.* 1988), an important criterion is group work (Platte *et al.* 1990).

Almost all of these definitions are hardly satisfying because of their vagueness, but also because of the use of terms like “project thoughts” and “learning experience”, which are not defined any further, are used in these definitions. Even if differences can be suspected in such vague definitions, the attempt to find them leads directly to the next problem.

Challenges in defining projects

The conception of project lessons varies exactly like the interpretations of the five terms mentioned above. Reasons for this might be e.g.: affiliation with different branches in educational philosophy, different ideologies, and vague and overlapping terms in technical terminology (Petri, 1991). Furthermore different authors cannot agree, if the definition should show the present situation or the objective of what project lessons should be, if aspects regarding content and methodology should be taken into account and on which level of abstraction the discussion should take place. This is why these definitions can hardly offer a secure basis for concrete ideas (Heintel and Krainz, 1988). Nevertheless they are useful because they show the wide variety

² In doing so the teacher’s actions have to be reasonable and the intention to “teach the values of a democratic society” should not be forgotten.

of project lessons. Furthermore these definitions encourage everyone to integrate their own point of view into the broad spectrum of definitions and maybe also to find new aspects.

The following definition presents those aspects that, up until now, have been agreed upon by most authors.

Project lessons are a *systematic* (1), *self organized* (2), *interdisciplinary* (3) *dealing* (4) *with real problems* (5) *through the cooperation of students, teachers* (6) *and other persons concerned* (7) *with the main aim to make a contribution to democratisation in society* (10) *by the presentation* (8) *of results* (9) (Fridrich, 1996).

1. Even though project lessons are an open lesson form, it would be a major misunderstanding to assume that contingency and coincidence are the leading factors. Projects have a structure, in which the course of events and the distribution of duties are recognizable although they are not predetermined. The structuring in phases, which can also be planned beginning with the product –namely “backwards” (e.g. an intervention in local events)– is therefore an important part of every project.
2. In all phases, the participants of the project determine by themselves due to various reasons, what is necessary and what is not. Finally the participants can introduce their own interests, whereas the teacher has to make sure that his/her ideas are not the centre of attraction. Interests do change and are not constant measures in the beginning of the project, i.e. reasonable changes and flexibility have to be possible. The students’ natural urge to discover should not be interfered with for example: to examine garbage disposals and their effect on the environment that suddenly caught one’s eye during a fluorine purification project.
3. Interdisciplinarity cannot be avoided, even if only one subject is involved, because what comes from everyday life cannot be classified in individual school subjects. Many subjects such as geography and economics are by themselves interdisciplinary, e.g.: when the effects of human or social actions are examined in a certain area and its economy according to the political aspect.
4. There is a major chance that action centred learning (including all senses) will be encouraged instead of the ordinary teacher centred learning, because something which is learned with all of the senses finds its way to long time memory better than isolated facts. Projects that highly relate to everyday life –like our subject is capable of providing– contain a number of possibilities for developing reasonable action forms, the so called field work techniques like cartography, measuring, describing, observing, sketching, etc.
5. Projects are not childish games invented by teachers, but deal with problems that arise from the students’ living conditions, which are often dismissed as banal, not noticed or even suppressed. e.g.: when we deal with the introduction of the Euro, the lack of park areas, problems in traffic, consumer’s rights education, etc.
6. Especially increased and over a longer period of time practiced group work intensifies social contacts, but sometimes it also leads to tensions and frictions, which have to be cleared, in order to achieve a positive development of the project.

Apart from the product the achievement of social goals is at least as equally important. Virtues like solving conflicts, learning to listen, dealing with failure and accepting other's opinions can effect lessons –by students' as well as teachers' actions– positively even after the project is over. The phrase “social learning”, which is often used nowadays, is a reality in project lessons, even if the project has to be cancelled for any reason or disappointments have to be overcome.

7. Projects extend the borders of the school and open their doors to their surroundings. The two aspects of this are that on the one hand experts, speakers, people who experienced certain times in history, etc., i.e. “people who do not belong to the school” appear in the school to provide the students with information, and that on the other hand the students can experience reality by taking part in excursions, field trips, quiz rallies as well as exhibitions.
8. What distinguishes projects from common forms of lessons, in which the acquired knowledge is –at best if at all– remembered until the next test, is that it leads to a product, which then can be presented to the public –which, once again, opens the school's doors for people who do not belong to the school. At this phase, the project leaves the level of practical actions and changes to critical commitment, which often also reaches the public. The students themselves can measure their cognitive achievement by looking at what they have accomplished and by realizing that their achievements are of practical use.
9. Products of projects can be material, like a photo documentation, a video film, a model, a better school environment, a play, etc. as well as immaterial, like the change of a personal attitude. The quality of the process, which leads to the product, is as hard to show with common forms of presentation as the immaterial products.
10. Activity instead of being activated! The knowledge “We can bring about something positive” increases the political relevance of projects in the near surroundings, even if the contribution to “world improvement” will only be a little one³, most of the time. e.g.: illegal garbage disposals are revealed, park benches are put in the school yard, trees are planted on the roads, unreasonable housing situations are revealed, the relationship between students and teachers gets improved, etc. Democratisation, of course, also includes an effect on the institution, in which the project took place, namely the school⁴ itself.

Learning processes in this complex method

In the previous sections, the differences between “common lessons” and “project lessons” have already been mentioned several times. Therefore, the following brief

³ But: “No one has ever made a bigger mistake than the one who did not do anything, because he could only do little.” (Edmund Burke)

⁴ This is also an important aspect of Dewey's concept: “Project is self improvement as well as world improvement”.

comparison (figure 2) is to be understood as a summary of the points mentioned before and at the same time as a basis for further considerations in the following sections. What is not intended here, is to give the impression that all common lessons are “bad and have to be rejected” and that project lessons are “good and precious” in principal (compare with Schirlbauer, 1986). It is often the case that high demands and increased expectancies contribute to the failure of a project, when the participants feel forced to improve everything with their lessons in comparison to traditional lessons (Duncker and Götz, 1984). While the view of a necessary completion of project lessons and common lessons is taken here (Bastian and Gudjons, 1990), Hänsel sees a “tendency towards destructive connections between the two lesson forms” (Hänsel, 1988).

Fears are often expressed by colleagues and sometimes even by parents, that nothing will be learned in project lessons. Admittedly, the way of learning is different. There are less facts and less “testable knowledge”. But project lessons allow the project-inexperienced participants to get a different view of lessons and of the social processes, which take place in such lessons. It is often the case that negative experience and general experience that hinders project lessons have to be overcome first (compare with Schmid *et al.*, 1992). Teachers have to change their traditional ways of proceeding and have to use different methods. But at the same time they have to –here drastically expressed– prevent themselves from becoming “animators” and school from becoming “Club Med” (Schirlbauer, 1987a). Students have to take over competences and responsibilities that are unfortunately often completely new for them.

Learning in traditional lessons	Learning in project lessons
“Arising problems are accepted as usual” (Posch 1990b).	Arising problems “confirm the abnormal character of project lessons and justify their rejection” (Posch 1990a).
Secondary motivation by –good– methodical preparation; artificially prepared learning situations (Meyer 1988).	Primary motivation by orientation towards the interests of the participants; learning in situations that relate to everyday life.
Teachers and school books are “the keepers of knowledge” (Oswald 1990), i.e. learning processes are determined by others (Hennings 1982).	Creation of “opportunities for learning by all participants for all participants” (Oswald 1990), i.e. self-determination of learning processes (Hennings 1982).
Learning about situations, about problems, etc.	Learning in certain situations, by problems, etc., i.e. qualitatively different learning.
In extreme cases purely rational and systematic lessons (compare with Bastian and Gudjons 1990).	“Project lessons as a method of change.” (Hänsel 1988)

Learning in traditional lessons	Learning in project lessons
The primary place of learning is school with some “excursions” like field trips, week excursions, etc.; “extracting learning from life”	Learning outside the school in real social situations.
Learning often only for tests and that way only with the short-term memory; “finishing-mentality” (Schwarz 1989)	Connected, interdisciplinary learning fits in with the “associative character of the long-term memory” (Schwarz 1989).
Predominantly falling back on existing teaching and working materials.	Additional need for material and funds (Petri 1991) in order to support or realize the planned learning processes.

Figure 2. Comparison of learning in traditional lessons with learning in project lessons (Ch. Fridrich)

Transfer of competences: step-by-step

“So, today you have to tell me your interests and then we are going to make a project about them”. This could be the request of a teacher to his class, with which he is guaranteed to fail.

What is here so drastically expressed, is in toned down forms often enough the case. Students, who had to keep their mouths shut up to then and were not allowed to influence the lesson arrangements, are suddenly *required* to be creative and to be full of ideas. The answer to the question of how long one should prepare for project lessons can only be: “Permanently!” Learning should never only take place in the way mentioned in the left column of the previous section. Starting with the first day of school, the teacher can transfer competences *step by step* to his students; e.g. by transferring “class duties” like taking attendance, decorating the classroom, etc., by planning field trips, excursions, week excursions, etc. together. Furthermore, social behaviour can be cultivated, social forms can be practiced and different working techniques can be learned. This way, projects work as a kind of indicator, because possible deficits become visible soon after the project has started, when e.g. students –and teachers– are not able to listen to each other, when the social form of work-sharing group work is not known, when different kinds of information cannot be used and presented, etc.

Drastically expressed, this means that a teacher cannot expect willingness to cooperate from his students in the course of the project, if he himself has not encouraged cooperation for years (Duncker and Götz 1984). The one who is not *allowed* to say anything through the whole year, will not be *able* to say anything, when he is asked to participate (Heller, 1984).

An education towards independence, in which the teacher relies on the “objective interests of the students” and therefore constantly restricts the students in their

actions, is a “basic dialectic contradiction of the method” (Meyer, 1988), which can be reversed, if the teacher also teaches the students “methodological competences for independent learning” (Meyer, 1989).

Competences can be divided into three dimensions (according to Bastian, 1984):

1. *Procedure-methodological competence*: allows the organisation of the project work and includes a) the ability to practice structured proceeding forms like individual, partner and group work as well as open lessons (Schwendenwein, 1991), b) the handling and use of different media and materials, c) the realisation of specific virtues for working (Huth, 1988), like concentration, reliability and accuracy and d) mastering different working techniques like interviewing techniques (Schulze, 1985).
2. *Social competence*: especially comprises the communicative area, which is reflected by the following control questions. How are decisions made? Are students and teachers able to communicate with each other? Are students able to answer, argue, explain, summarize, and stick to the point? Is meta-communication used? (Röseler, 1978).
3. *Subject competence*: includes knowledge of the subject and its facts and is often overestimated as a requirement for projects. Yet, gaps in this competence area can be closed⁵ much easier than in the two areas mentioned before, when the student systematically acquires the knowledge of the subject and its facts –alone or with the help of the teacher– before or during the project. (Bastian, 1990).

One central aspect: action-oriented learning

There are no lessons in which there are no activities. Talking, writing and laughing are activities with a purpose on the descriptive level. On the prescriptive level –orientated towards the didactical principles– (Jank and Meyer, 1990) action centred lessons are to be understood as “integral lessons based on the students’ activities, in which the products of the activities, which have been agreed upon by the teacher and the students, lead the lesson processes, so that the brainwork and the manual work of the students can be brought into balance” (Meyer, 1988). In other terms, the aim is “to construct thinking structures in combination with action processes: doing and thinking, theory and practice, school and life, experience and method, intellect and sensuality belong together.” (Gudjons, 1990). But: Only “doing” leads to educational and learning achievements (Schirlbauer, 1987a; BIE and Louwense 1977), it would also be a misunderstanding, if teachers only tried to conduct activity centred lessons (Vielhaber 1988).

Activity centred lessons can be described by seven characteristics (abridged according to Jank and Meyer, 1990):

⁵ Trying to introduce procedure-methodological or social competences like working in groups, handling plans, punctuality, being able to listen to someone else, etc. shortly before or during the project week, will probably not work.

1. Action centred lessons are *integral*: the student as a whole –with his head, heart, hands, feet and all his senses– should be appealed to; topics are developed from questions that are derived from the action product agreed upon; the lesson methods also have to be integral, e.g. role play, exploring, etc.
2. Action centred lessons are *student centred*: the student’s activities are an essential requirement for his independence.
3. The material and mental *results of lesson work*, which are action processes, are capable of being published: The students can identify themselves with these results and reflect on the action processes.
4. Action centred lessons try to make the *students’ subjective interests* the central issue of lessons: The main question in this connection is, what the students’ real interests are – not deformed by consumption, the media or other interests.
5. In action centred lessons, the students are involved in *all* phases of the lesson.
6. Action centred lessons *open* the school towards its surroundings.
7. Action centred lessons try to bring *brainwork and manual work* into balance.

Statements like “Action centred lessons as basis for projects” (Vielhaber et al. 1988) or “project lessons – an extensive concept of action centred teaching and learning” (Gudjons, 1989) show the elementary relationship between action centred lessons and project lessons. Action orientation can also be found in other didactical approaches, like in exemplary-genetic learning⁶, in discovery learning⁷, in open, student centred lessons⁸, in experience-related lessons⁹ and in goal orientated lessons¹⁰. Of course, action centred elements should also be integrated into common lessons, like by didactical games, by explorations, by building models, by redecorating the class room, by writing wall news-sheets, by having parties, etc.

Different action dimensions have different extensions, starting with situation research, going to information and ending with the highest activity level, namely changing (compare with figure 5). As shown in all three of the mentioned main levels, action orientation goes beyond the project group more or less and therefore becomes socially important actions, because it is aimed at the improvement of real situations (Duncker and Götz, 1984). Therefore, actions within the politically educating geography and economics lessons mean “political actions” (Schramke, 1986). Thereby, geography lessons do not aim at catalogues of characteristics, at static knowledge, at sole facts or connections, but at the connections of daily actions in the

⁶ Advocate: Wagenschein, catchwords: “believe in yourself even if something doesn’t work out”, little guidance by the teacher during the search for answers – “Mäeutic”.

⁷ Advocate: Bruner; catchwords: “students’ fun with discovering”, “insight into the structures of information”.

⁸ Systematist: Wagner.

⁹ Advocate: Hentig; catchwords: Inclusion of subject related biographical experiences and skills of students with all their complexity and contradictions, in order to show the background of broadened thinking.

¹⁰ Advocate: Keck; central themes: “aim orientation and communication”, “students as subjects”.

family, in the village or city, in which the complex structures of local/regional conditions as well as officially arranged political chances or pressures are shown.” (Vielhaber *et al.*, 1988).

Action dimensions – divided into 3 main levels	Content dimensions –examples from the project “traffic calming in a street”
EXPLORING	
1. Investigating 2. Examining 3. Interviewing	Counting the density of traffic in a street Examination of the ground of a highly frequented parking space Finding out the neighbours’ opinions about the traffic calming
INFORMING	
4. Documenting 5. Informing 6. Initiating	Making a wall news-sheet about the effects of traffic in narrow streets Summarizing the results and passing them on to the district authorities for publication Advertising an appealing arrangement of trees
GETTING THINGS MOVING / CHANGING	
7. Demonstrating 8. Actions 9. Changing everyday behaviour	Possibilities for blocking off the street and students’ demonstrations Helping with planting trees Using public transportation and not letting the parents drive one to school

Figure 3. Action and content dimensions of project lessons (Ch. Fridrich, according to Bönsch, 1990)

The changed role of the teacher –the delegational continuum

The teacher’s monopoly on planning is overcome, instead –hopefully– a cooperative planning process develops (Bastian 1990). To which extent, the teacher can really keep in the background will mainly depend on two factors. First of all, if the students have already learned to take over leading functions themselves (compare with Diem-Wille, 1982) and second of all, if the teacher is willing to hand over these functions to his students. Project lessons depend on the teacher’s trust in his students and on allowing independence and self-responsibility, provided that the students have the necessary maturity.

Diem-Wille (1986) shows the handing-over of leading functions in a *delegation-continuum* (figure 6) for school (according to Johnstad, quoted from Schwarz, 1974).

It has to be mentioned once again, that the first step shown can often only be reached by a learning process of many years. And even then, the teacher will have to do more structuring work at the beginning of the project, before he can withdraw after some time (Frey, 1990). That the teacher himself needs a lot of patience and has to give his students enough time (Bossing, 1977; Frey, 1990), should already be considered before the beginning of the project. Furthermore the withdrawal of the teacher is a process that contradicts the habits of teachers and students, because the socialisation (Schulz, 1990) and the “otherwise usual roles” (Frey, 1990) have to be fought against. So now the teacher leaves the safe terrain of “the pre-plan-ability of students’ reactions” (Vielhaber *et al.*, 1988) and is therefore forced to act more flexible and to react more spontaneously.

As a teacher I decided	and the students are allowed to discuss with the teacher
1. nothing	Whether they want to learn something: This option is not open to the teacher in common schools.
2. that something should be learned	What they want to learn: This is achieved in mature projects, in which the teacher only encourages a project.
3. what should be learned	When and how it is learned: The teacher prescribes the topic, and the students define the priorities, the timetable and the method by themselves.
4. when and how it should be learned	How they want to acquire information: This can become meaningful as transitional step to step number 3 and finally to step number 2; this limited form of transfer of leading positions is probably not enough for project lessons.
5. the way information is acquired	The way, information is assessed and results are presented: This is an important element of group work.
0. everything	What they think about the lessons: At least, students are still taken seriously when the teacher is interested in their feedback.
0. everything	Nothing, only reproduction at the test: One-sided communication or no communication at all, students are only the ones who reproduce.

Figure 4. Delegation continuum (Diem-Wille, 1986)

This way we already get close to the teacher's need of fear rejection (Diem-Wille, 1982), which can only be secured by highly structured and tightly preplanned lessons. Fears that are repressed this way in common lessons are made conscious by the changed requirements of project lessons and create insecurity, irritability, the feeling of demanding too much, etc. Examples for these fears are (according to Tobel, 1988):

- The fear of losing track of things and of not being able to understand all project activities.
- The fear of experiencing deficits and finally one's own limitations which have been caused by occupying oneself only with one's own subject for years.
- The fear of disciplinary problems and the negative feedback of other colleagues and the administration concerning this.
- The fear of failing in comparison to other colleagues involved in the project process.

However, the teacher's role must not be reduced to just helping out in problem situations or to granting all the students' wishes (Bie and Louwse, 1977; Schöpke, 1981; Schirlbauer, 1987b). The teacher's role is not that of the one who imparts the knowledge. Since this shift of tasks is hard to explain with words, *functions*, in which *the teacher* can cause influence, are mentioned here (using Schmid *et al.*, 1992):

1. *As a coordinating counsellor and assistant*

He makes suggestions, gives warnings in case of wrong decisions, encourages fantasies (Duncker and Götz, 1984; Jank and Meyer, 1990), explains his opinions without directing the project process towards his own aims (Schöpke, 1981), structures the learning and working process (Bie and Louwse, 1977; Hornischegg and Rosenbichler, n.y.), leads coordinating conversations with colleagues, which increase drastically with the number of participating teachers (Diem-Wille, 1982) and sees himself as a learning manager (Vielhaber *et al.*, 1988).

2. *As a conflict manager*

If conflicts occur, which cannot be solved by the students, it will be essential that the teacher intervenes as mediator with educational sensitiveness. Fixed points, in which meta-interaction takes place, are especially meaningful, as well as the reflection –usually at the end of the project– with the primary question of what has been learned for the next time and for common lessons.

3. *As a moderator (compare with HUTH, 1988)*

Meyer already talks about a moderation of the teacher in the common learning process in group lessons (Meyer, 1989). Especially at coordinating points, which

occur in every project process, the teacher should put his competences into the common process of finding solutions (Duncker and Götz, 1984). This way he can –like a mæutic¹¹– encourage his students to use their learning possibilities self-responsibly (Gudjons 1989; Schulz, 1990).

4. *As experts*

In partial areas and in partial aspects, teachers will be able to offer their knowledge and their organisational skills. Also in learning to handle different technical medias like altimeters, video cameras etc. or machines, the teacher's skills with instruments will be meaningful and at the same time support the students.

5. *As someone who learns as well*

What is precious in project learning is that both sides –students and teachers equally– learn socially and in content together. Everyone's active participation in the learning process (Meyer, 1988), leads to individual development (Hänsel, 1988), whereas the teacher can participate in a group like every other member, even if he cannot totally give up the role, which he has acquired by socialisation (Frey, 1990).

'Project classes' versus 'normal classes'

The final question remains, which effects the –positive and negative– experiences with class atmosphere and within the teacher-student relationship of the project lessons will show effect on common lessons. Even if school is often referred to as an “ultra stable institution”, experiences, which were gained during projects, can hardly be separated from everyday school life. In some form they have an effect on everyday school life. In other words, cause “radiating effects” (Hackl, n.y.) or work as “lesson catalysts in low doses” (Schweingruber, 1984). These effects can be experiences by those colleagues, who did not take part in the project, when students become more difficult, namely when they start to question the teacher's decisions, to reject certain lesson methods or “methodological monoculture” and participate in discussions more critically. However such feedbacks have not been systematically studied yet.

According to Duncker and Götz (1984) possible effects of project weeks on common lessons can be listed as shown below.

¹¹ Mæutic: Greek for: midwife

How can common lessons profit from project weeks?

From the student's point of view:

- Own desires and needs can be introduced.
- Independence increases by more self-confidence.
- More readiness to help other students.
- The teacher's problems are better understood.
- Conflict solving strategies can be practiced.
- Positive access to the subject.
- The results of the work flow in into common lessons.

From the teacher's point of view:

- More confidence in the students.
 - Possibly common lesson planning.
 - Further improvement of the relationship to the students.
 - More understanding towards the students, because they have been experienced as "whole people" during the project lessons.
 - Overcoming the common teacher description.
 - Teachers work together more, coordinate together.
-

Figure 5. How can common lessons profit from project weeks?
(Ch. Fridrich, using Duncker and Götz, 1984)

Problems and limitations of projects

Like any other lesson form, project lessons also go along with many problems (Posch, n.y.), which have to be seen realistically, in order to prevent overestimation (Rasch, n.y.). From the facts mentioned in the previous section, the temporary conclusion can be drawn, that difficulties can arise in different areas and on different levels. Sometimes it depends on the teacher and his attitudes that project lessons cannot "work" or cannot "work" satisfactory. Sometimes "the school system"¹² is responsible for the failure of a project. And sometimes the participants are steamrolled by suddenly arising problems, while others struggle with difficulties, which arise in almost every project.

What does "failing" mean anyway? There are some people who claim that failing does not exist if it is accepted and overcome. By this way, learning processes could also be activated (Huth, 1988). On the other hand, we all know the remark that a certain lesson has gone wrong from common lessons, i.e. usually that the goal aimed at has not been accomplished. Analogous to this, you could also speak of the failure of a project if the main goal has not been accomplished (Weber, 1990).

Hackl differentiates between four possibilities of failure (Hack, n.y.):

1. The pretended activation of lesson events: by the students, in order to decimate common lessons.
2. The pretended handing-over of control functions: from teachers to students.

¹² School offers – apart from all criticism – also precious support for a project. It is a *workshop* and a *laboratory* for experiments, a *base camp* for investigations, a *training camp* for the acquisition of skills, a *meditation place* for reflections and a *Micro Society* for collecting social experience (according to Schulz, 1990).

3. The pretended support of motivation: by teachers, who at the same time pursue predetermined goals.
4. The pretended imparting of knowledge and skills: by superficial activities.

All of the four possibilities named show similarities; they run counter to the project thought, contain too little honesty and encourage learning processes only to a less degree. The comparison to the example of *unproductive project lessons* seems interesting and illustrative at the same time here (abridged, according to Duncker and Götz, 1984):

- *Journalism instead of stamp collection*: Not only superficial collecting, but revealing of backgrounds and integration into an entire connection.
- *Archaeology instead of a stroll through the flea market*: Not accumulation of curiosities for nostalgic purposes, but investigation of historic every day connections.
- *Experimental theatre instead of showcase decoration / fashion show*: Not abuse of aesthetics in “chocolate sweet” presentations, in order to cover up problems, but use of aesthetics for self-critical reflection for information and provocation.
- *Civic action instead of sandpit games*: Not only playful simulation of reality, but also intervention in social developments with a democratic-tolerant responsibility.
- *Inventor workshop instead of Christmas handicrafts*: Not production of “precious junk” by copying prefabricated instructions, but realisation of creative ideas by craft-practical-technical working and use in social context, e.g. construction of a street model for discussion support and for testing possible effects of measures for traffic calming.

The question of, which kind of problems can be recorded, remains unanswered now as ever. A possible differentiated, systematic way of looking at difficulties and limits of project lessons is offered by the ranking within a four field scheme (compare with Figure 8), in which intern and extern causes on the one side and stable and variable factors on the other are combined with each other¹³. In this connection “intern factors” sum up problems, which arise during the project process on the social level by the individuality of students’ and teachers’ personalities etc. “Extern causes” are understood as problems, which influence the project process from the outside, like the rigidity of the school system, the disapproval by non-participants etc. Intern as well as extern causes can be stable, i.e. they generally arise in every project, or variable, i.e. they only arise in some projects under certain conditions.

¹³ The four field scheme according to Weiner, quoted from Herkner (1991); which is used in a different context there, is referred to here.

	Intern factors	Extern factors
Stable factors	<p>The realisation of an “ideal-typical” project finds its limits soon because of its conception (Hasse 1989). The acquisition of knowledge forms of a highly structured subject field, e.g. of complicated behavioural-biological knowledge, of English vocabulary etc. is more efficient in other lesson forms (Schirlbauer 1987a; Frey 1990). Complementary relationship structures between students and teachers also remain valid in project lessons (Bastian 1984; Röseler 1978). Contradiction between interest orientation and subject orientation (Bastian 1990). Learning processes with “little and big failures and frustrations” (Hennings 1982). Achievements in learning are not clearly visible shortly after the project, but only on long term basis, since cognitive knowledge is connected with affective and psychomotor experience (Frey 1990).</p>	<p>Predetermined institutional general conditions (Riess 1986; Hackl n.y.; Frey 1982). High pressure of certain subjects for usability especially in final classes (Riess 1986; Petri 1991). Lack of teacher training and further training for project lessons (Teml 1983; Boutemard 1988; Petri 1991).</p>
Variable factors	<p>Former experiences of teachers cause a “theoretical overloading” of the project (Hennings, 1982; Schneller, 1986; Hackl, n.y.; Rohleder, 1992). Students’ interests are not acknowledged by the teacher (Schneller 1986; Gudjons 1989). Adding of additional learning aims and contents by the teacher (Hackl, n.y.). Perceiving the scope in project lessons as something non-obligatory (Bie and Louwerse, 1977). Exploitation of committed colleagues (Meyer, 1989). Great prestructuring of learning processes (Frey, 1990). Great preparation requirements (Petri, 1991).</p>	<p>Lack of money and materials (Petri, 1991). Lack of willingness to cooperate by colleagues who are not involved in the project (Frey, 1982; Hennings 1982; Teml, 1983; Petri, 1991). Stopgap function of project weeks (Meyer, 1989). Social and political pressures that influence the school are disguised in project lessons (Schneller, 1986). Difficulties with acquiring information because of “system-produced resistance” (Röseler, 1978). Lack of “didactical connection” between elements of the project and of common lessons (Gudjons, 1989), i.e. little “didactical radiation” (Petri, 1991). Time pressure by limiting the project to one week (Gudjons, 1989; Frey, 1990).</p>

	Intern factors	Extern factors
Variable factors	Students' lack of will to cooperate with each other (Röseler, 1978). Students have not learned to work independently (Teml 1983). Students' lack of interest (Hennings, 1978; Rohleder, 1992).	

Figure 6: Systematic overview: problems and limits of project teaching (Ch. Fridrich)

Conclusions

Project lessons as a lesson form and at the same time as a method of democratisation were integrated as definite components in education –Paris: engineers and architects– 200 years ago for the first time. Decades later, in the middle of the 19th century, the independent development of the project method, which has been further developed based on the concept of the American pragmatism by Dewey and his student Kilpatrick, started in America. Dewey and Kilpatrick extended the definition of the term “project” from practical problem solving to the didactical principle of firm, intentional doing. In Germany and some years later in Austria, the project method has been disseminated by reform pedagogues especially in the first third of the 20th century as an answer to the educational crisis.

For students, who are used to different social forms of lessons, independent working, partial codetermination, creative thinking and considering communicative basic rules, project lessons will not bring about substantial problems. Such lessons are provided with project nearing elements and therefore constant preparation for project lessons. But difficulties with planning and realisation can arise by negative attitudes of colleagues, basic requirements of our school system, which is based on individual subjects, great preparation requirements, pressure by subject matters, lack of teacher training as well as materials and funds. Whether a project inexperienced teacher tries to carry out such plans –project as “proiectum”, as “projected adventure”– will not only depend on the approval of the superiors and the help of others, maybe experienced colleagues, but also on the individual personality of the teacher, i.e. to which extent are they ready to allow the dissolution of traditional roles.

Consciously realized, interdisciplinary project lessons are suitable for toning down certain effects of negative tendencies in our society at least for the period of the project and for offering positive approaches for “common lessons” by: encouraging social thinking, feeling and acting; creating cosmopolitan attitudes; supporting initiative, independence and self-responsibility; independent defining and working on problems with the help of regional sources; training integral thinking.

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Correspondencia con el autor:

Prof. Dr. Christian Fridrich
Head of the Department of Geography and Economic Sciences
Pedagogic University Vienna
Ettenreichgasse 45A
A-1100 Wien
E-mail: fridrich@pabw.at