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Chapter 5

An adaptive approach to teachers' professional development in the context of *SpeakTeach*: an innovative approach to teaching foreign language speaking

Abstract

The study reported in this chapter investigated how teachers can be supported in expanding their teaching repertoire in the context of a specific innovation (the new adaptive teaching approach for speaking skills in foreign languages, described and investigated in the previous chapters). For teachers' professional development it is important to take both teachers' goals and their current teaching practice into account and to build on this existing teaching practice and provide steps which enable the incorporation of the new teaching proposal. In order to realize such a professional development trajectory, the design principle of modularity was used following other studies (Janssen, Grossman & Westbroek, 2015) and self-evaluation by the teacher was added as second design principle. An adaptive development trajectory was designed on the basis of these two interrelated design principles and we investigated whether adaptive learning routes could be realized within this development trajectory in which teachers could achieve both the goals of the innovation (the developed adaptive teaching approach for speaking skills in foreign languages) and their own objectives in a way that fitted in with and built on what they were already doing in their teaching practice. To this end, self-evaluations by the teachers (n=11) of their teaching practice were used to determine how they implemented the different procedures⁶ of the new teaching approach in consecutive lesson series and to describe their learning routes. In addition, an impact analysis (Janssen, Westbroek & Doyle, 2014a) was used to collect data about advantages and disadvantages of the regular teaching practice and lesson series based on the new teaching approach. The results showed that almost all teachers (10 out of 11) succeeded in expanding their teaching repertoire in line with the goals of the innovation and followed adaptive learning routes to their own satisfaction. We distinguished three different successful learning routes: builders who stayed close to their regular teaching practice and built stepwise on their routines towards a new teaching practice. Innovators with big steps back who experimented with new practices at the beginning and then took big steps back. A related group, innovators who refined, also

⁶ The adaptive teaching approach (the *SpeakTeach* method) consists of three design principles from the perspective of students (see chapters 3 and 4), and of two design principles from the perspective of the teacher. In this chapter, where the teacher's perspective is central, we refer to the three design principles from the student perspective with *procedures* to avoid confusion. With *design principles* in this chapter we refer to the design principles from the perspective of the teachers: the use of modularity and self-evaluation by the teachers, because these were the design principles for tailoring the professional development trajectory to teachers' goals and existing teaching practice.

experimented directly with new practices, but did not take big steps back afterwards. Instead they consolidated and refined the application of the procedures of the new teaching approach.

5.1 Introduction

Educational innovation has been strongly linked to teachers' professional development (Borko, Jacobs & Koellner, 2010; Kennedy, 2016a). There is agreement in this context regarding features of professional development that are effective in improving teaching practice: the content should be situated in practice; it should be focused on students' thinking and learning; innovative practices should be modelled and coached; and teachers should be actively and corroboratively engaged in professional learning communities (Borko et al., 2010).

In addition to these effective features, it is increasingly recommended that teachers' professional development be approached adaptively. In line with the assumption that students learn better when education is tailored to their learning needs (Corno, 2008; Van de Pol, Volman & Beishuizen, 2011), it is important to attune to the teachers' goals and to their current situation (e.g. Kennedy, 2016a; 2016b; Janssen, Westbroek, Doyle, & Van Driel, 2013).

In the context of an innovation, however, it is difficult to realize adaptive learning routes. In this case a desired direction for professional development had already been determined and in general the purpose was to encourage teachers to expand their teaching repertoire by following a specific innovative teaching approach. According to Kennedy (2016a: 973), we do not have well developed ideas about how to help teachers incorporate new ideas into their ongoing systems of practice.

This chapter focuses on the question of how, in the context of a specific innovation, adaptive learning routes can be realized in which teachers can achieve both the goals of the innovation and their own objectives in a way that fits in with and builds on what they are already doing in their teaching. To this end, two interrelated design principles for an adaptive professional development trajectory were explored, namely modularity and self-evaluation. These two design principles were elaborated for adaptive professional development in the context of an innovative teaching approach for speaking skills in foreign languages. We investigated to what extent the professional development trajectory actually led to adaptive learning routes for the participating teachers.

5.2 Theoretical framework

Attuning to teachers' goals

It is clear that teachers must support the goals of an innovation if they are to implement it into their teaching practice. According to Kennedy (2016a), teachers usually do support the goals of innovation but the problem is that they have to reconcile those goals with other goals arising from classroom ecology (Doyle, 2006; Janssen, Grossman & Westbroek, 2015). Classroom ecologies in which teachers work are complex demanding settings that shape their decision-making processes and actions. In order to enhance students' learning, teachers have to realize different goals at the same time, such as teaching the curriculum content, enlisting student participation, exposing student thinking, containing student behaviour, accommodating personal needs, and managing time and resources (Doyle, 2006; Janssen et al., 2015; Kennedy, 2016b). Moreover, teachers have to react immediately to the different needs and have to make decisions very quickly in a classroom situation (Doyle, 2006). Research into human decision-making in complex situations where multiple goals need to be achieved and time and resources are limited has shown that it is not possible to determine and weigh all alternatives to attain the goals simultaneously, due to lack of knowledge, time and information capacity (Gigerenzer & Gaissmaier, 2011). For this reason, people do not strive to optimize one single goal, but they seek to improve the actual situation so that several goals can be attained to an adequate level (Pollock, 2006). Any new teaching practice needs therefore to be consistent with the other goals that teachers have to realize (e.g. Kennedy, 2016b; Janssen et al, 2013).

In conclusion, a professional development trajectory should not only do justice to the purpose of the innovation but should also fit in with the contextual and personal goals of the teachers.

Attuning to teachers' current practice

Traditional forms of professional development aimed to improve teaching practice by providing new teaching proposals which were intended to change or replace the current teaching practices (Borko et al., 2010; Van Veen, Zwart & Meirink, 2012). In these approaches, the focus was not on current teaching practice, but on learning about the new teaching approach. Adoption of the new idea often meant abandonment of teachers' prior teaching

approaches (Kennedy, 2016a). As a result, innovations often failed (Van Driel, Beijaard & Verloop, 2001). Since teachers already have a teaching repertoire that has arisen from experiences, knowledge and attunement to the context, and that has been proven in practice, it is important to take this existing repertoire into account (Van Driel et al., 2001).

It is now generally recognized that teachers develop their knowledge and teaching repertoire on the basis of existing teaching routines (Darling-Hammond & Bransford, 2007; Bransford, Derry, Berliner & Hammerness, 2005). Two dimensions to this development have been discerned: routines and innovation (Figure 9). On the one hand, it is important that teachers refresh their teaching repertoire. Teaching requires adaptation and innovation in order to respond to changing demands, new insights and knowledge and to fulfil teachers' own changing needs, preferences and capabilities. On the other hand, routines are necessary in order to save time and to respond efficiently in situations through automatization and quick recognition of patterns on the basis of knowledge and experience (Feldon, 2007). The routines free up cognitive effort since not every aspect of the teaching context has to be analysed every time in order to choose an appropriate reaction. The released cognitive capacity allows teachers to enact innovative approaches and to react to unexpected classroom circumstances (Feldon, 2007; Bransford et al., 2005).

It is important for professional teacher development to take the balance between routines and innovation into account. A one-sided focus on the development of routines leads to boredom and stagnation. Conversely, too much focus on innovation might result in frustration, loss of control and rejection of new teaching proposals (Bransford et al., 2005; Darling-Hammond & Bransford, 2007). Bransford and Darling Hammond (2005; 2007) suggest therefore that a stepwise progression which simultaneously builds on existing routines and embeds innovations works best.

In order to support teachers to expand their teaching repertoire, professional development should build on the existing teaching repertoire and provide steps which enable the incorporation of the new teaching proposal. In addition, it should be recognized that teachers must be able to pursue different goals at the same time. In the next section we propose two principles to realize such an adaptive professional development trajectory: *modularity* to provide flexibility and steps to improve towards more ambitious practices and *self-evaluation* of existing teaching practice as the starting point of an adaptive learning route for improvement.

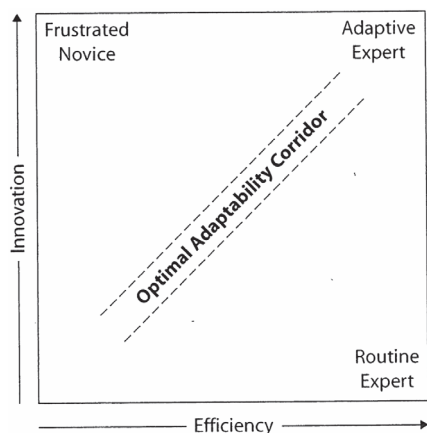


Figure 9 *The trajectory toward adaptive expertise balances efficiency and innovation via the optimal adaptability corridor.* Source: reprinted from Bransford, Derry, Berliner, & Hammerness (2005: 49).

Principle 1: Modularity

How can you take existing practice as a starting point and still innovate in the direction of the desired innovation? This may be realized through modular innovation. Modularity denotes a general strategy in which a complex system or activity is broken up into parts, or modules, and recombined to generate new combinations and to reform the system concerned (Holland, 2012; Janssen et al., 2015: 139). Innovations in complex man-made systems such as cars, houses and computers are often based on slight adaptations and or recombinations of existing components. For example, with the same set of components for houses, like walls, windows, floors, rooms and roofs, we can generate an incredible variety of houses through recombination and adaption. Typical modules for computers are, for instance, power supply units, processors, mainboard, graphics cards et cetera. Many different computer models can be built by recombining and adapting these modules.

In short, innovation can be achieved through recombination and adaptation of existing modules or building blocks. This innovation strategy is both generative and efficient. It is generative because with only a limited number of modules, a great diversity of new situations can be formulated. It is an efficient way of innovating, since it re-uses already existing components (Holland, 2012).

We can also apply this strategy to promote innovation of a teacher's repertoire building on the teacher's existing practice (Janssen et al, 2015; for empirical studies see: Janssen, Westbroek & Doyle, 2014a; Dam, Janssen, Van Driel, 2013; Janssen, Westbroek, Doyle & Van Driel, 2014b; Janssen, Hulshof & Van Veen, 2016). In order to promote modular innovation in education, it is important to first describe the existing teaching practice and the innovative approach at a comparable level of abstraction. Teachers often say that innovative proposals are not practical. This is because the desired approach is often presented abstractly and as a stand-alone whole. As a result, it is not clear how to transform the abstract ideas and goals efficiently into concrete classroom activities that fit in with the existing classroom demands and other goals (Doyle & Ponder, 1977; Janssen, Westbroek, Doyle & Van Driel, 2013; Janssen et al., 2015; Kennedy, 2016b). For this reason, both the existing teaching practice and the desired situation must be formulated in terms of comparable modules, or *building blocks*, at the same level of description (Janssen et al., 2015; Simon, 1996). A module, or a building block is a recognizable lesson segment of a regular lesson series. For language lessons building blocks could be input (reading texts or listening fragments), exercises (for instance focused on grammar or vocabulary), speaking activities and feedback (see chapter 3, 3.2.2).

Subsequently, if the current and desired situation are represented in similar building blocks, modularity helps to show the differences and how these can be reduced by adapting and recombining the existing modules (Janssen et al., 2013). In this way, teachers can innovate and expand their current teaching repertoire by selecting and recombining building blocks that already exist in their current teaching practice. The possibility to recombine the building blocks and use them in different sequences makes the innovative teaching approach flexible (see chapter 3, 3.2.3). This flexibility is intended to help teachers to integrate new repertoire stepwise into their existing practices in a way that is time-saving and consistent with their own aims, by using their existing repertoire (perhaps in a different order). As a result, different learning routes can be followed to arrive at the innovative teaching practice.

Principle 2: Self-evaluation of existing teaching practice as a starting point for an adaptive learning route

Reflection on practice has been widely accepted as an important ingredient in professional development trajectories (Marcos, Sanches & Tillema, 2011). Many programs encourage

teachers to reflect on their experiences and to formulate and try out new resolutions. For professional development in the context of innovations, reflective thinking and acting is also considered to be important because it helps teachers to gain insight into the relevance of innovation in relation to daily teaching practice and because connections are made with their own teaching repertoires (Borko et al, 2010). Similarly, language students are also invited to reflect on their experiences and to formulate and try out new resolutions. Since we use the term self-evaluation in the student context to refer to these processes, we will use the same term in the context of teacher professional development.

Although self-evaluation is widely valued, it is often difficult for teachers to relate their current teaching practice to the innovative approach, because innovative approaches are often described at a quite abstract level in terms of the criteria which the design and enactment should meet (Janssen et al., 2013; Kennedy, 2016b). Modularity can facilitate targeted self-evaluation by representing the current teaching practice and the innovation in similar building blocks at the same level of description which enables the teacher to compare their current teaching approach to the proposed innovation and to note advantages and disadvantages. On the basis of the self-evaluation of the existing and desired situation, the teacher formulates goals and intentions for improvement, and chooses how and in what steps, to integrate the building blocks of the innovation (the new teaching approach) into his/her teaching practice.

Teachers' self-evaluations also enable them to tailor the professional development trajectory to their own needs as they provide information for both the teachers themselves and the facilitator of the professional development trajectory about what the teachers do, experience and wish to achieve and what tailored input and activities are needed. Instead of prescribing a specific method and activities, the self-evaluation allows facilitator and teacher to make decisions together about the necessary guidance, input and activities and what the next steps could be. Since teachers are likely to differ in their existing situation and their goals, there will be a need for adaptive learning routes. A professional development trajectory must take these differences into account. A one-size-fits-all approach will not work. Instead, different activities are needed from which teachers can choose (Henze, Van Driel & Verloop, 2009). For this reason, we decided to start the professional development trajectory with a self-evaluation by the teacher followed by differentiated activities.

5.3 Research aim and research questions

The theoretical framework addressed the question of how adaptive routes can be set up in the context of educational innovation, enabling teachers to achieve both the goals of the innovation and their own goals in a way that fits in with, shapes and builds on what they already do in practice. In this study the educational innovation for a professional development trajectory addressed a teaching approach for adaptive feedback and differentiated activities to improve speaking skills in foreign languages. We called this educational innovation the *SpeakTeach* method. The aim of the research was to investigate the extent to which the professional development approach we had developed, which is based on modularity and self-evaluation, actually led to adaptive learning routes in the context of the innovation (namely in the context of implementing the *SpeakTeach* method). In this study, *adaptive within the context of the innovation* means that we were interested in the extent to which teachers achieved the goals of the innovation (the implementation of the *SpeakTeach* method) as well as their other goals to their own satisfaction by following learning routes they had chosen themselves, and whether they intended to apply all or parts of the innovation (i.e. the *SpeakTeach* method) in the future.

This led to the following sub questions:

- A. To what extent did the teachers achieve the goals of the innovation (i.e. the *SpeakTeach* method) and their other goals and to what extent were they satisfied with the achievement of their goals?
- B. To what extent did the teachers follow adaptive learning routes in the context of the innovation (i.e. the *SpeakTeach* method) and to what extent did they intend to continue the *SpeakTeach* method in the future?

5.4 Method

5.4.1 Context

The adaptive professional development trajectory in this study aimed to support foreign language teachers in expanding their repertoire of adaptive feedback and differentiated activities for improvement in their regular teaching of speaking skills in secondary schools, because research has shown that adaptive feedback is desirable but not common practice in

teaching (Gass & Mackey, 2012; Lyster, Saito & Sato, 2013; Yoshida, 2008), due to practical constraints of the classroom ecology (Chapter 3; Corda, Koenraad & Visser, 2012; Fasoglio, 2015). An innovative teaching approach was developed for this purpose, the *SpeakTeach method*, which is modular and presented in, for teachers, recognizable building blocks (see chapter 3). The core of the *SpeakTeach* method consists of three procedures. Procedure 1: the students listen to a recording of their speaking performance, evaluate their own performance and make a plan for improvement, and indicate their preference for working method and whether they need assistance from the teacher. This self-evaluation with plan provides insight into learning needs to both teachers and students and enables adjustment and alignment of learning activities. Procedure 2: the teacher provides activities to improve the speaking performance and chooses how to steer the working method on the basis of the self-evaluation (alternatively but less commonly the students may do this themselves). Procedure 3: the teacher adjusts feedback based on the students' self-evaluations (alternatively but less commonly feedback may be provided by peers). Multiple variations on the core (the three procedures) are possible which generate versions which differ in the degree of alignment in the lessons, in the degree of learner autonomy, and in the degree of differentiation of activities and adaptive feedback. The *SpeakTeach* method was made adaptive to students by starting with a self-evaluation by the learner and attuning the student's learning route to that and the professional development trajectory was made adaptive to teachers in a similar way.

5.4.2 Participants

The study was conducted among the same foreign language teachers of the experimental group who applied the *SpeakTeach* method in their teaching (see chapter 3). It was not necessary to have a homogenous group of teachers with similar teaching practices. Since the precise purpose of the study was to develop an *adaptive* professional development trajectory which would enable teachers to expand their teaching repertoire with an innovative teaching approach that would fit in with their practices, a heterogeneous group of teachers was desirable. Complete datasets were available from 11 foreign language teachers. Data from each teacher about his/her regular teaching and data about a maximum of three *SpeakTeach* lesson series were selected from these datasets for the present study.

5.4.3 Intervention

The 11 foreign language teachers participated in a professional development trajectory (PDT) comprising five meetings of three hours each spread over three months, followed by an implementation of the *SpeakTeach* method in their own teaching for four months. The PDT started with a self-evaluation by the teachers of their existing methods of teaching speaking skills. In the first meeting, the facilitator of the PDT (the author, see chapter 1) showed a visual representation in building blocks of a regular lesson series teaching speaking skills (Figure 1, chapter 2) and checked whether the teachers recognized this kind of teaching by discussing concrete examples of lessons (e.g. speaking activities and preparatory exercises in course books) provided by both participants and the facilitator. After that, the teachers produced a visual representation of their own regular teaching practices using similar building blocks and evaluated advantages and disadvantages. They then compared their teaching practice to the new approach, the *SpeakTeach* method, which was presented in similar building blocks (Figure 4, chapter 3) by the facilitator of the PDT. The three procedures of the *SpeakTeach* method and possible different ways in which they can be carried out were discussed, as well as advantages and disadvantages of the method and the procedures. Finally, the teachers indicated in their self-evaluations what they wanted to improve, how, and what kind of support they needed or preferred. Subsequently, depending on the teachers' goals, learning needs and preferences which had been noted in their self-evaluations and discussed with the facilitator, differentiated activities were provided during the professional development trajectory such as modelling, discussion, exchange, individual work and experimentation. In addition, according to the needs raised, instruction was provided about effective feedback according to research and teachers' experiences and this was discussed. By using recordings of students' speaking performances and speaking activities in course books, participants and the facilitator discussed how to formulate feedback, how to design guided or free communicative speaking activities and how to ensure alignment in lesson series. Finally, the teachers designed *SpeakTeach* lesson series based on the design procedures and in line with their own goals, which they then implemented in their teaching. The intervention was concluded with an evaluation meeting.

5.4.4 Research instruments

In order to answer the research questions, we used the following instruments:

1. A self-evaluation by the teachers of their regular teaching practice (see Appendix III), containing:

- a. *A visual presentation in building blocks of their regular teaching practice* (Appendix III.A)

The teachers were asked to make a visual presentation in building blocks of a representative regular lesson series in speaking skills (such as Figure 4, chapter 3) in order to show the type and order of the lesson segments that made up their regular lesson series.

- b. *Goals for improvement* (Appendix III.C)

In an open question the teachers were asked to formulate and prioritize goals in order to improve their current practice of teaching speaking skills (a maximum of five goals).

2. Open questions about advantages, disadvantages and difficulties of the Teaching Impact Analysis (see Appendix IV and V (part A), questions 3-5)

From the teaching impact analysis (Janssen et al., 2014a, see chapter 3. and Appendix IV and V, part A) that was used to establish the practicality of the teachers' regular teaching and the *SpeakTeach* method, open questions about advantages, disadvantages and difficulties were used in this study. The teachers were asked to write down the five most important advantages, disadvantages and difficulties of their regular methods of teaching speaking skills in a pre-test and a post-test.

3. A description of each *SpeakTeach* lesson series (Appendix VI), containing:

- a. *A visual presentation in building blocks of the SpeakTeach lesson series*

The teachers were asked to visualize each *SpeakTeach* lesson series they carried out in building blocks (such as Figures 4 and 5, see chapter 3) in order to show the type and order of the lesson segments that made up their lesson series (see Appendix VI, A. *Structure of a SpeakTeach round*).

- b. *Questionnaire about the design of the SpeakTeach lesson series*

The questionnaire contained 10 closed questions to characterize the lesson series: number of speaking activities; type of speaking activities; place of self-evaluation; type of structure; type of input for improvement; type of supporting exercises for improvement; type of working

methods; who determines which input and exercises are done; in which order and with which working method; and focus and organization of feedback (see Appendix VI, *B. Specification of a SpeakTeach round*).

4. An evaluation of the *SpeakTeach lesson series* (Appendix IV and V.A), containing:

a. *Open questions about advantages, disadvantages and difficulties*

The evaluation contained the open questions of the impact analysis (Appendix IV and V, questions 8-10). The teachers were asked to write down the five most important advantages, disadvantages and difficulties of their regular teaching practices and their lesson series with the *SpeakTeach* method in a post-test.

b. *Evaluation of the goals for improvement*

Satisfaction with their achievement of each personal goal that they had formulated (see instrument 1.b, above) was scored by teachers on a 7-point Likert scale with an open field for explanation (Appendix V.C, questions 25-29).

c. *Application of all or parts of the SpeakTeach methodology in the future*

Teachers were asked to score their intention to apply all or parts of the *SpeakTeach* method in the future on a 7-point Likert scale with an open field for explanation (Appendix V, part D, questions 30-31).

5. A question by email about whether teachers had actually applied all or parts of the *SpeakTeach* method in the new school year seven months after the intervention.

5.4.5 Procedure

The 11 participating teachers started the first meeting of the professional development trajectory (see intervention) with a self-evaluation of their regular teaching practice in speaking skills. This self-evaluation consisted of making a visual representation in building blocks of a representative regular lesson series in speaking skills (instrument 1.a), of evaluating their current methods by writing down advantages and disadvantages (instrument 2) and finally of formulating and prioritizing their own goals for improving their current teaching practice in speaking skills (instrument 1.b.). After five meetings in three months, the teachers designed and implemented two or more *SpeakTeach* lesson series in their teaching over four months. A *SpeakTeach* lesson series is a lesson series in which students have to achieve a certain speaking goal and in which the three procedures of the *SpeakTeach* method are

applied. For each *SpeakTeach* lesson series teachers filled in the questionnaire and made a visual representation (instruments 3). After about four months the teachers were asked to evaluate the *SpeakTeach* lesson series they had conducted (instrument 4a). They scored their satisfaction with the achievement of their goals (instrument 4b) and indicated to what extent they intended to apply all or parts of the *SpeakTeach* methodology in the future on a 7-point Likert scale (instrument 4c). After the intervention some teachers (n=6) kept in touch with the facilitator on their own initiative and proceeded with the *SpeakTeach* method for the rest of the school year and continued in the new school year. The other teachers (n=5) were asked by e-mail whether they had continued with the *SpeakTeach* method in the new school year (about 7 months after the intervention) (instrument 5).

5.4.6 Analysis

An overview was produced for each teacher which consisted of five types of data: teachers' intended goals (instrument 1b); the scores for the extent to which the teachers were satisfied with the achievement of their goals (instrument 4b); the application of the procedures of the *SpeakTeach* method in the lessons (instrument 1 and 3); the score for the extent to which the teacher intended to apply all or parts of the *SpeakTeach* method (instrument 4c); and continuation or not with all or parts of the *SpeakTeach* method in the new school year (5). In order to produce this overview, the data about the goals and the application of the procedures were encoded as set out below.

Coding goals

To determine whether the teachers' goals were congruent with the goals of the innovation or were other teaching goals, the data (instrument 1c) were encoded as follows:

1 = related to the goal of procedure 1, namely insight into learners' learning process and alignment of speaking activities with input and exercises;

2 = related to the goal of procedure 2, namely to adjust steering of working method, input and exercises to learners' autonomy and/or preferences;

3 = related to the goal of procedure 3, namely to adjust feedback to individual learning needs.

O = Other goals which may be related to teaching speaking skills but which were not included in the goals of the procedures, such as: improvement of speaking activities, and improvement of the testing of speaking skills. Practical goals were also included, concerning, for instance,

time, resources, class size, and organization. The author and an assessor (a teacher educator at ICLON, Leiden University Graduate School of Teaching) assigned the scores (Cohen's $\kappa = 1.0$).

Coding the extent to which the procedures had been applied in regular lessons and SpeakTeach lesson series

In order to determine to what extent the teachers had applied the three procedures of the *SpeakTeach* method (instrument 3) and to what extent they had already used these procedures in their regular teaching practice (instrument 1), all three procedures were scored on a scale from 0 (not applied) to 3 (maximum application) (see chapter 3, section 3.5.1, and Tables 3.1, 3.2 and 3.3 for explanation).

Data analysis research question A

In order to answer research question A - *To what extent did the teachers achieve the goals of the innovation (i.e. the SpeakTeach method) and their other goals and to what extent were they satisfied with the achievement of their goals?* – we analysed the encoded data to ascertain:

1. whether the teachers had goals that were consistent with the goals that the innovation aimed to achieve (goals 1, 2 or 3, related to procedure 1, 2 or 3) (data instrument 1b);
2. whether the teachers had experimented with the procedures (extent of application of the procedures) and whether they were satisfied that the implementation of the procedures had helped them to achieve their goals (data instruments 1 and 3, and instrument 4b);
3. whether the teachers had any other goals than those intended by the innovation (code O) and, if so, whether they were satisfied with the implementation of these other goals. Being satisfied would mean that other personal goals could be achieved within the context of the innovation (data instruments 1b and 4b).

Data analysis research question B

In order to answer the first part of research question B – *To what extent did the teachers follow adaptive learning routes in the context of the innovation, i.e. the SpeakTeach method* – we used the scores for the extent to which each teacher applied each procedure in their regular teaching and in each *SpeakTeach* lesson series as described in chapter 3, section 3.5.1 (see

Table 3.1, 3.2 and 3.3, chapter 3). We used these data to examine whether trends / patterns in shifts could be discovered in how the procedures were applied by the 11 participants in their different lesson series. To discern different patterns, we based our method on the Adaptive Expertise Model of Bransford et al. (2005, see Figure 9) and examined how big the steps were which teachers took in applying the procedures (*innovation*) in relation to their regular teaching (*routines*). We considered one step as a one-point difference in score in application of a procedure between successive lesson series, two steps as a two-point difference in score, and three steps as a three-point difference. No difference in score meant that no step in development had been taken (see scores table 3.1, 3.2 and 3.3).

For the second part of research question B – *To what extent do the teachers intend to continue using the SpeakTeach method in the future?* – we examined the data on their intention to apply all or parts of the SpeakTeach method in future and the actual application of all or parts of the SpeakTeach method in the subsequent school year.

Finally, to illustrate the adaptive learning routes, we looked for similar learning routes in the teachers’ application of the three procedures (instrument 1 and 3) in their teaching in the different rounds, and described representative cases of these similar learning routes. To describe these cases we used the collected data in the following order: description of the regular teaching practice (instrument 1a); advantages and disadvantages experienced (instrument 2); goals (instrument 1b); implementation of the three procedures (instrument 3); achievement and satisfaction with teacher’s goals (instrument 4b); advantages and disadvantages of the *SpeakTeach* method and the regular teaching practice (instrument 4a); and intention to apply all or parts of the *SpeakTeach* method (instrument 4c and 5).

5.5 Results

5.5.1 Results for research question A

To what extent did the teachers achieve the goals of the innovation (i.e. the SpeakTeach method) and their other goals and to what extent were they satisfied with the achievement of their goals?

Table 5.1 provides an overview of all the data for each teacher. In the first column the teachers and the possible classification of their goals (goals related to procedures 1, 2 or 3, or other goals (O)) are enumerated. The second column shows the number of the teachers’ goals that

were related to procedures 1, 2 or 3 of the *SpeakTeach* method, or to other goals (O) which were not part of the *SpeakTeach* method. The third column shows their satisfaction with the achievement of the goals on a scale of 1 (not satisfied) to 7 (very satisfied). The fourth column shows the steps in the application of the procedures of the *SpeakTeach* method starting with their regular teaching practice (first number) to several *SpeakTeach* lesson series. In the overview (Table 5.1, column 4) the first number refers to the score for their regular teaching practice, the second number refers to the first *SpeakTeach* lesson series, the third number to the second *SpeakTeach* lesson series and if there is a fourth number, it refers to a third *SpeakTeach* lesson series. The fifth column expresses the intention to apply all or parts of the *SpeakTeach* method in future on a scale of 1 (no intention) to 7 (very strong intention) and the sixth column shows the effective application of the procedures in the subsequent school year. The last column 'interpretation' describes the relation between these data (as a response to the three questions in the section headed Data analysis, research question A above).

The interpretations in the last column show that all teachers had goals (29 in total) that corresponded with the goals of the innovation (2 teachers formulated goals related to all three procedures; 9 teachers formulated goals related to one or two procedures). Furthermore, all teachers had experimented with the procedures of the *SpeakTeach* method. However, one teacher could not apply procedure 3 (giving adaptive feedback). The teachers were satisfied (satisfaction score of 4 or more) with the achievement of 22 of the 29 goals related to the innovation and less satisfied (satisfaction score <) with 7 goals. Three of these 7 goals were not achieved to full satisfaction by one teacher (G). In the explanatory note teacher G explained that there were exceptional organizational circumstances which made it difficult for her to teach her class face-to-face and therefore to work on her goals. Besides the goals of the innovation, nearly all teachers (10/11) had other goals (23 other goals in total). They were satisfied with the achievement of 19 of these goals and less satisfied (satisfaction score <4) with 4 goals (2 of these 4 goals were not achieved to full satisfaction by teacher G due to difficult external organizational circumstances).

Table 5.1

Overview for each teacher of their goals, satisfaction with the achievement of their goals, steps in the application of the procedures of the SpeakTeach method, their intention to continue and actual continuation of the application of the procedures after the intervention.

Teacher	Procedures or Other	Number of goals	Extent of satisfaction with achievement goals	Implementation of SpeakTeach procedures	Intention to apply all or parts of the SpeakTeach method	Applied all or parts of the SpeakTeach method in the next school year	Interpretation
A	1	2	6-7	2 3 3 3	7	Yes	<p>Had goals that matched the goals of the innovation, tried the procedures and took steps in procedures 1 and 3 with which the teacher was satisfied. The teacher was less satisfied with the achievement of procedure 2.</p> <p>→ goals of the innovation realized; procedure 2 tried but the teacher then went back to the old routine</p> <p>→ overall satisfied with the teaching method</p>
	2	1	3	1 3 1 1			
	3	2	4-6	0 3 0 2			
	0						
B	1	1	3	2 1 1 2	7	Yes	<p>Had goals that corresponded with the goals of the innovation and took steps with which the teacher was moderately satisfied.</p> <p>Had other goals. It appears that these goals could be realized within the innovation because the teacher was satisfied with them.</p> <p>→ It seems that the teacher achieved other goals, which could be achieved satisfactorily within the context of the innovation.</p> <p>→ overall satisfied with the teaching method</p>
	2			1 3 3 3			
	3	1	3	1 3 1 1			
	0	2	5-7				
C	1	1	5	2 2 3	7	Yes	<p>Had goals that corresponded with the goals of the innovation and took steps in that direction with which reasonably satisfied.</p> <p>The teacher also had other goals, which apparently could be realized within the context of the innovation, because the teacher was very satisfied with them.</p>
	2	1	5	1 3 1			
	3	1	7	0 3 1			
	0	2	6-7				

D	1	2	5-7	2 3 3 3	7	Yes	<p>→ both the objectives of the innovation and other objectives within the context of the innovation realized, teacher satisfied with this.</p> <p>→ overall satisfied with the teaching method</p> <p>Had goals that corresponded with the goals of the innovation and took steps in that direction with which the teacher was reasonably to well satisfied.</p> <p>The teacher also had other goals, which apparently could be achieved within the context of the innovation, because the teacher was reasonably satisfied with them.</p> <p>→ both the objectives of the innovation and other objectives were realized, and the teacher was satisfied with this.</p> <p>→ overall satisfied with the teaching method</p>
	2	1	5	2 3 2 3			
	3			3 3 3 3			
	0	2	4-6				<p>Had one goal that corresponded to one of the goals of the innovation (procedure 3) and took steps in that respect with which reasonably satisfied.</p> <p>The teacher also had other goals, which apparently could be realized within the context of the innovation, because the teacher was very satisfied with them.</p> <p>→ It seems that the teacher mainly achieved other goals, which were achieved satisfactorily within the context of the innovation.</p> <p>→ overall satisfied with the teaching method</p>
E	1			2 3 3 3	7	Yes	<p>Had one goal that corresponded to one of the goals of the innovation (procedure 3) and took steps in that respect with which reasonably satisfied.</p> <p>The teacher also had other goals, which apparently could be realized within the context of the innovation, because the teacher was very satisfied with them.</p> <p>→ It seems that the teacher mainly achieved other goals, which were achieved satisfactorily within the context of the innovation.</p> <p>→ overall satisfied with the teaching method</p>
	2			1 2 2 3			
	3	1	5	1 3 3 3			
	0	3	6-7				<p>Had one goal that corresponded to one of the goals of the innovation (procedure 3) and took steps in that respect with which reasonably satisfied.</p> <p>The teacher also had other goals, which apparently could be realized within the context of the innovation, because the teacher was very satisfied with them.</p> <p>→ It seems that the teacher mainly achieved other goals, which were achieved satisfactorily within the context of the innovation.</p> <p>→ overall satisfied with the teaching method</p>
F	1	2	5-7	1 2 3 2	7	Yes	<p>Had goals that corresponded with the goals of the innovation (procedures 1 and 2) and took steps on all three procedures with which reasonably to well satisfied.</p> <p>The teacher also had other goals, which apparently could be realized within the context of the innovation, because the teacher was reasonably satisfied.</p> <p>→ Both the objectives of the innovation and other objectives were realized with reasonable satisfaction within the context of the innovation.</p>
	2	1	5	1 3 3 2			
	3			0 3 3 2			
	0	2	4-6				<p>Had goals that corresponded with the goals of the innovation (procedures 1 and 2) and took steps on all three procedures with which reasonably to well satisfied.</p> <p>The teacher also had other goals, which apparently could be realized within the context of the innovation, because the teacher was reasonably satisfied.</p> <p>→ Both the objectives of the innovation and other objectives were realized with reasonable satisfaction within the context of the innovation.</p>

G	1							→ overall satisfied with the teaching method
	2	1	2			7	Yes	Had goals that corresponded to the goals of the innovation and took steps on two of the three procedures (not for procedure 2).
	3	2	2-3					The teacher also had other goals. The teacher was not satisfied with the implementation of any of the goals. In an explanatory note, the teacher explained that the organizational circumstances at school were very difficult at that time. Normally in these circumstances providing feedback would not be possible at all in regular lessons. Through self-evaluation and recording, the teacher still had an insight into the learning process, even though she hardly saw the students due to the circumstances.
	O	2	1-3					→ the objectives of the innovation were achieved. Due to difficult organizational conditions, own goals were not achieved satisfactorily
H								→ overall satisfied with the teaching method
	1	2	7			7	Yes	Had goals that corresponded to the goals of the innovation (procedures 1 and 2) and took steps in that direction (procedures 1 and 3) with which very satisfied.
	2	1	7					The teacher also had other goals, which apparently could be realized within the context of the innovation because the teacher was very satisfied with them.
	3							→ both the objectives of the innovation and other objectives within the context of the innovation were realized and the teacher was satisfied with this.
I								→ overall satisfied with the teaching-method
	1					3	Yes	Only had goals that corresponded to one of the goals of the innovation (procedure 3) and took steps in this direction, with which the teacher was satisfied.
	2							The teacher had many other goals, which apparently could be realized reasonably well within the context of the innovation because the teacher was reasonably satisfied with them.
	3	1	6					
	O	4	5					

									<p>→ both the objectives of the innovation and other objectives were achieved within the context of the innovation, to the teacher's satisfaction; however, the teacher indicated in the explanatory note that she would probably only apply parts of the teaching approach.</p> <p>→ The teacher had goals that corresponded to the goals of the innovation (procedures 1 and 2) and made steps in all procedures with which she was reasonably satisfied. She also had other goals. One of those could be achieved reasonably well within the context of the innovation, and the other less well.</p> <p>→ overall satisfied with the teaching method</p>
J	1	1	5	0 2 2	7	Yes			
	2			1 2 3					
	3	2	5-6	0 2 1					
	O	2	2-5						
K	1	1	4	0 2 2 2	5	No			<p>Had goals that corresponded with the goals of the innovation (procedures 1 and 2), took steps for procedures 1 and 2 with which the teacher was a little bit satisfied, but procedure 3 did not succeed and so the teacher was not satisfied with this at all.</p> <p>The teacher also had other goals, which apparently could be realized to some extent within the context of the innovation, because the teacher was partially satisfied with these goals.</p> <p>→ The teacher had goals with regard to the innovation but the procedure for providing adaptive feedback seemed to be inapplicable. Satisfaction was therefore low. The teacher still considered it possible to use parts of the teaching approach in the future. However, the teacher indicated that he had not used the <i>SpeakTeach</i> method in the following school year.</p>
	2			1 3 3 3					
	3	1	1	1 0 0 0					
	O	2	3-6						

5.5.2 Results for research question B

To what extent did the teachers follow adaptive learning routes in the context of the innovation, i.e. the SpeakTeach method, and to what extent do they intend to continue the SpeakTeach method in the future?

Table 5.1 shows that nearly all teachers (9/11) strongly intended to apply all or parts of the teaching approach (highest score 7) in the future and that 10 teachers actually applied the teaching approach in the subsequent school year.

What did their routes look like? The scores in the fourth column of Table 5.1 indicate the extent to which each teacher had applied the three procedures in their teaching. First of all, a division can be made into 1) teachers who took one or two steps in the procedures starting from their regular teaching methods, but never took two steps at once to the maximum score 3; and 2) teachers who immediately took big steps in innovation (at least for two procedures to the maximum score 3). In the model of Bransford et al. (2005), the first group of teachers (teachers H, I and J) stayed close to the dimension of routines, built stepwise on routines from their regular teaching practice and inserted the procedures progressively. In contrast, the second group seemed to be innovators who experimented directly with big steps. From there we can look at how the teachers developed in subsequent *SpeakTeach* lesson series: one group of innovators can be distinguished who took big steps back (teachers A, B and C) and another group of innovators seemed to fine-tune in later lesson series (teachers D, E, F and G). One teacher fell outside this classification (teacher K), as he did not succeed in applying one of the three procedures at all. Hence, four patterns can be discerned.

Classification 1: the builders (from routine) (n=3, see Table 5.1: teachers H, I and J)

Builders are teachers who applied the procedures of the innovative teaching approach, step by step, building on their own teaching practice. Starting from their regular teaching approach, these teachers took one or two steps in each lesson series, but not always for each procedure and they never took two steps at once to the maximum implementation of a procedure (score 3). They had goals that corresponded with the goals of the innovation among other goals of their own, and were satisfied with what they achieved. In the next school year, they reported that they were still using one or more procedures of the teaching approach in their teaching.

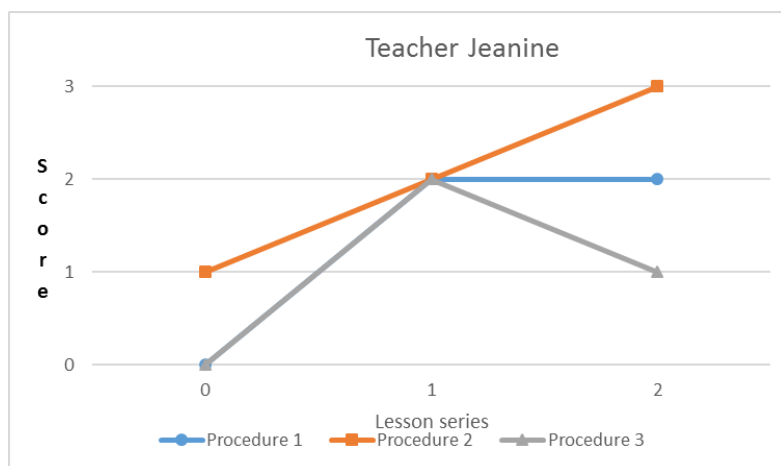


Figure 10: Example of classification 1, the builders: learning route of teacher Jeanine (J)

Case description: teacher Jeanine

In the regular lesson series of teacher Jeanine, there was no explicit alignment of input and exercises to improve speaking activities (procedure 1, score 0), even though supporting exercises were present in the curriculum (grammar, vocabulary, pronunciation, listening fragments). These exercises were the same for all students (procedure 2, score 1). There was hardly any structure in sequences of speaking activities (procedure 1, score 0)). The teacher provided feedback to the class as a whole or to individuals while walking around (procedure 3: score 0). Jeanine mentioned as advantages of her regular teaching practice that little preparation was needed and students could safely practise in pairs. Disadvantages were that students often finished the speaking activity too quickly and that they could withdraw from the activity without being noticed by the teacher. The teacher had little insight into the learning process, she found that assignments were boring for the students and because of lack of time speaking activities were the first thing to be dropped. Jeanine wanted to change the sequence of the speaking activities by adding self-evaluations by the students (goal related to procedure 1). She also intended to vary the feedback provider, to increase the number of feedback recipients, to review the assessment of speaking activities and to introduce more variation in the focus of feedback (goals related to procedure 3).

Jeanine performed two SpeakTeach lesson series in two parallel year 3 pre-university (vwo) classes. In both lesson series she maintained the structure of the book and in this way stayed close to her regular teaching practice. Concerning procedure 1, Jeanine instructed the

students to carry out a self-evaluation of all speaking activities in the lesson series in order to gain a good insight into the learning process (steps in procedure 1, from score 0 to 2 and congruent with her intended goals). Jeanine gave a lot of input and exercises based on what students asked. In the first lesson series the steering of the learning process was shared by teacher and students: Jeanine gave instruction in grammar to the whole class in order to improve the grammar in their speaking performances and afterwards the students chose their own activities (step in procedure 2, from 1 to score 2 although the teacher did not mention this as a goal). In the second lesson series, the work on the improvement activities was entirely student driven (procedure 2, score 3). Concerning feedback (procedure 3), Jeanine indicated that she now gives much more feedback and spends much more time on speaking skills (steps in procedure 3 and congruent with her intended goal) than she did before. The feedback provided in the second lesson series was not based on the self-evaluations due to lack of time but it was based on the speaking performances during recording (score 1). So here she chose a time-saving way to attune feedback.

Compared to her regular teaching practice, Jeanine was more satisfied with the SpeakTeach method for the type of speaking activities (not related to SpeakTeach method); the alignment between the speaking activities and the teacher's and students' insights into students' learning process (related to procedure 1); the input and exercises; and the freedom of choice it gave to the students (procedure 2). Jeanine considered the great advantage of the SpeakTeach lessons to be that there was more opportunity to give adaptive feedback than in her regular teaching practices (procedure 3). As a disadvantage she pointed out that students often placed too much emphasis on grammar in their evaluations and plans (procedure 1). She also mentioned lack of time as a difficulty.

She was satisfied with the implementation of her intended goals: build-up of speaking activities with the addition of self-evaluation (procedure 1); variation in feedback provider and focus of feedback; number of feedback recipients (procedure 3); and testing of speaking activities (other goal). Jeanine had wanted to add free speaking activities but did not do so (other goal).

In the future Jeanine wanted to continue with SpeakTeach lessons. She explained: "I am convinced of the quality and added value". As major advantages for the students she mentioned that they have an influence on their learning process and do not have to do things

they think are unnecessary. In the subsequent year Jeanine reported that she still applied the *SpeakTeach* method.

Classification 2: Innovators with big steps back (n=3, see Table 5.1: teachers A, B and C)

Innovators with big steps back were teachers who took big steps in innovation right at the start, but then took big steps back. These teachers experimented directly with the maximum design (score 3) for at least two procedures of the new teaching approach in the first lesson series and therefore did not stay close to their regular teaching practice. However, after experimenting in this first lesson series, they took big steps back (two steps or more) in the following lesson series. These teachers had goals that corresponded with the goals of the innovation. They were very satisfied with the new teaching approach overall, but not always very satisfied with the realization of all their goals. They all had strong intentions to apply parts of the new teaching approach in future and in the next school year they did indeed report that they were still using one or more procedures of the teaching approach in their teaching.

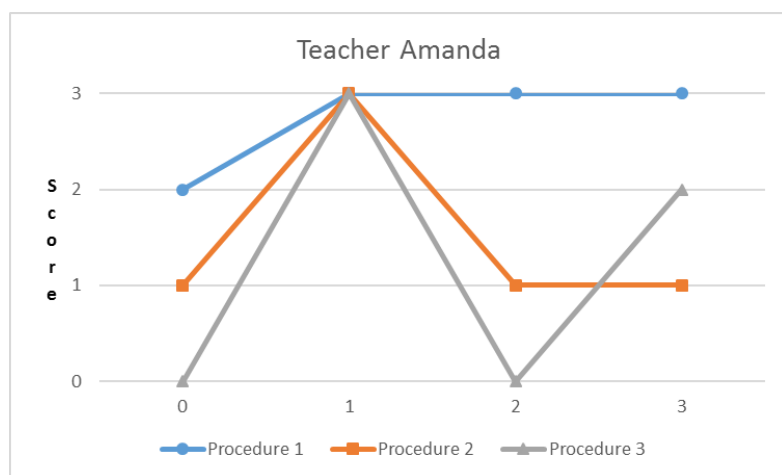


Figure 11: Example of classification 2, innovators with big steps back: learning route of teacher Amanda (A)

Case description: teacher Amanda

Typical of the regular lessons of teacher Amanda was that there were several free speaking activities to achieve the same speaking goal and that, in order to carry out the speaking activities, the students needed to use grammar, vocabulary and expressions that had already been presented to them and which they had learned in the lesson series (procedure 1, score 2:

there was alignment in activities and speaking goal)). She was very satisfied with this structure from the course book. Type, order and working method of the speaking activities and activities for improvement were the same for all students (procedure 2, score 1). Amanda used peer feedback and walked around the class to give feedback on individual speaking performances. She was satisfied with the positive feedback she could give to encourage her students but dissatisfied that she could not give targeted feedback to individual students due to lack of time and large classes (procedure 3, score 0). In order to improve her regular teaching practice, Amanda had decided to have the self-evaluation done at the first speaking activity. After that the students could be given instructions and specific exercises to help them improve followed by another self-evaluation at the end of the lesson series on the same speaking activity (procedure 1: score 3, full alignment). She also wanted to give students more freedom of choice in their learning process (procedure 2: steering).

Amanda performed three SpeakTeach lesson series in the third year of havo. In the first lesson series she experimented with the maximum application of the SpeakTeach method, namely: reversal of order in the lesson (bringing forward the final speaking activity with self-evaluation followed by activities for improvement, procedure 1, from score 2 to 3); complete freedom of choice for the students to improve their speaking performance (procedure 2, from score 1 to 3); and fully adaptive feedback based on the self-evaluations (procedure 3, from score 0 to 3). In all of her SpeakTeach lessons Amanda kept the maximum application of procedure 1 (complete alignment) and she was very satisfied with it. Amanda called this a big change which had made the alignment between the speaking activities and the input and exercises clear.

With regard to the steering of the learning process (procedure 2), her intention was to add more freedom of choice for the students. After the first SpeakTeach experience there was a regression towards teacher steering (score 1). Amanda explained that students indicated that they would like to get more steering in the improvement activities. Concerning procedure 3, Amanda did not give adaptive feedback due to time constraints, only classroom feedback based on previous experiences and the learning objectives and not on the basis of the students' self-evaluations (score 0). In the latest SpeakTeach lesson series; however, Amanda did give adaptive feedback (score 2). Furthermore, the improvement activities were much more attuned to the students in the first SpeakTeach lesson series than in the second and third lesson series (procedure 2).

Amanda considered self-evaluation and adaptive feedback very desirable (procedures 1 and 3). As a positive point of the SpeakTeach lessons, she reported that she could listen to individual students and that there was flexibility in the application of the procedures of the SpeakTeach method: “Students learn to reflect on their own speaking performance and worked actively on improving their speaking skills” (all procedures). Amanda was pleased that she had started to give much more individual and more specific feedback than before (procedure 3). As a disadvantage Amanda reported that freedom of choice did not work well for her students; they appeared to need more clarity and steering (procedure 2). Furthermore, it took Amanda a lot of time, because she listened to all the recordings. She had decided to do so, because students appreciated this so much. Amanda indicated that she probably wanted to use parts of the SpeakTeach method in future. In the new school year, she did indeed report, that she was still applying the SpeakTeach method.

Classification 3: Innovators who refine t (n=4, See Table 5.1, teachers D, E, F and G)

Like the innovators of classification 2, *innovators who refine* also took big steps in innovation right at the start. However, unlike the classification 2 innovators, they did not take big steps back, but refined the implications of the procedures in subsequent lesson series. In the first lesson series, these teachers also experimented directly with the maximum design (score 3) for at least two procedures of the new teaching approach and therefore did not stay close to their regular teaching practices. Then, in later lesson series, they took steps of 1 in the application of the procedures. These teachers had goals that corresponded with the goals of the innovation among other goals of their own, and were satisfied with their realization (except for teacher G due to particular circumstances). All teachers were satisfied with the new teaching approach overall, strongly intended to apply parts of the teaching approach in future and reported in the next school year that they had indeed continued to use one or more procedures of the teaching approach in their teaching.

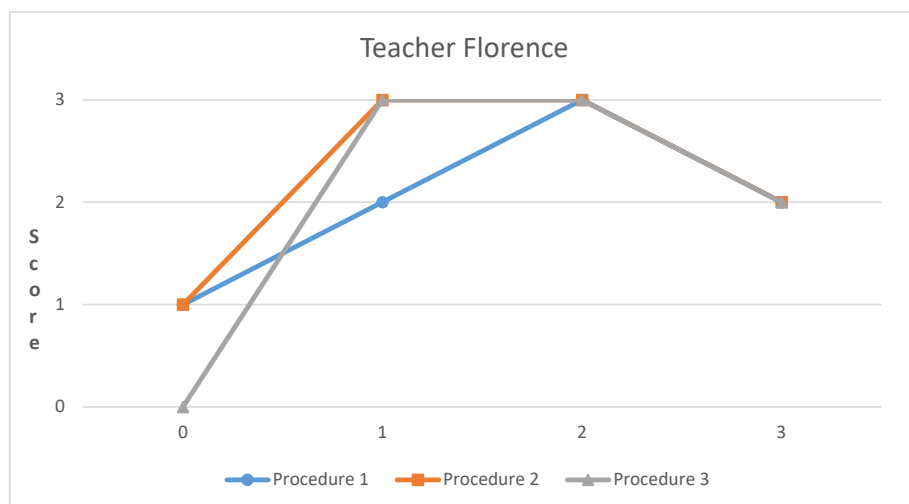


Figure 12: Example of classification 3, innovators who refine: learning route of teacher Florence (F)

Case description: teacher Florence

In Florence's regular teaching practice, lessons were shaped from receptive to productive skills. There was no explicit link between the speaking activities and the other components in the lesson series (procedure 1, score 1). Moreover, there were only a few guided speaking activities on which Florence gave feedback while passing by (procedure 3, score 0) and activities for improvement were the same for all students (procedure 2, score 1).

As the most important positive aspects of her regular teaching practice, Florence mentioned that the speaking activities bring alternation and motivation in the lessons, but she was dissatisfied with the limited amount of speaking activities and the time needed to design and carry them out (not directly related to one of the procedures of the innovation). In order to improve her current teaching practice in speaking skills, Florence intended to increase the alignment between lesson components and to build up the sequences of speaking activities (procedure 1). She wanted to design a lesson sequence which began with the final free speaking activity with self-evaluation, followed by guided speaking activities and improvement activities, and ending with another self-evaluation of the final free speaking activity (procedure 1). She also wanted to give the students more freedom of choice (procedure 2) and she wanted to improve the speaking activities by creating an information gap, and adding exercises aimed at communicative strategies (other goals). Regarding feedback, Florence wanted to give more

feedback on affective factors, and more feedback in communicative contexts with time to recap (procedure 3) and to discover what exactly ensures students' self-efficacy (other goal).

Florence carried out three SpeakTeach lesson series in the third year of havo. She experimented with the maximum design (score 3) of the procedures of the teaching method, such as the final activity of speaking with self-evaluation at the beginning of the lesson series followed by improving the performance (procedure 1). She gave her students freedom of choice in working method and type of activities (procedure 2) and she used a broad feedback repertoire. The feedback was tailored to the students' questions and their self-evaluations (procedure 3). This was a major change compared to her regular teaching practice. In the process of experimenting with the SpeakTeach method, she took a step back to shared steering at a certain point (procedure 2, from 1 to 3, to 3 and back to 2) in order to achieve a good structure and alignment with the final speaking objective in line with her intentions (procedure 1).

As the most important positive aspect of the SpeakTeach lessons, Florence mentioned efficiency and the demand-driven way of working, based on the involvement of the student (procedure 2). In accordance with her intentions and the design of the SpeakTeach lessons, Florence became much more satisfied with the number and type of speaking activities (other goals) and the structure and alignment in the speaking activities in the SpeakTeach lessons (procedure 1). According to Florence, the purpose of the speaking activities and alignment with other components of the lesson series were not clear in her current teaching practice, but by applying the SpeakTeach method the purpose and the alignment of the speaking activities and exercises became clear and the students saw their usefulness. Florence also became more satisfied with the working methods: much more variety through the activities designed to improve the speaking activity and students worked well because they had freedom of choice in working method and learning activities (procedure 2). The teacher was also satisfied with the students' performance and development. Note that the teacher became more negative about her own feedback repertoire (procedure 3). She was initially satisfied, but after the intervention she saw points for improvement. The teacher wanted to give more feedback and more consciously. She was satisfied, however, that students were working more and more independently and as a result she had more time to give feedback on speaking performance and there was time to recap.

After these three SpeakTeach lesson series, Florence developed further to maximum SpeakTeach applications (sores 3). During the intervention period, she had already applied the teaching approach in other classes and provided additional data to the researcher (the author). In the data from these other classes, the author and an assessor (p. 12) saw that Florence was working in an increasingly student-driven way (procedure 2). She had even made procedure 1 more adaptive than the maximal application of this procedure in the original teaching method; she let the students choose the final speaking activity themselves at the beginning of the lesson series (with self-evaluation in order to improve the activity). In the new school year, she reported that she was still applying the SpeakTeach method.

Classification 4. Quitter (n=1, See Table 5.1, teacher K)

One teacher fell outside the other three classifications, because he did not innovate on one of the procedures and was not satisfied with his failure to achieve his goal with regard to this procedure. This teacher also reported that he did not apply parts of the new teaching approach. For these reasons, this classification was called *quitter*.

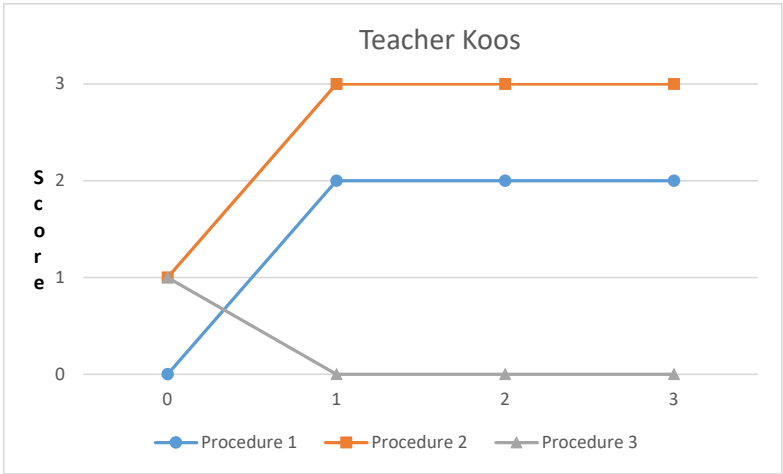


Figure 13: Example of classification 4, Quitter: learning route of teacher Koos (K)

Case description: teacher Koos

In his regular teaching practice, Koos gave classroom feedback and feedback on individuals' speaking performances while walking around the class. For some speaking activities he gave individual feedback for a grade (procedure 3, score 1). There was no build-up in sequences of speaking activities and no explicit alignment with exercises for improvement of the speaking

performance (procedure 1, score 0), but there were exercises (chunks, idiom) to prepare the speaking activities which were the same for all students (procedure 2, score 1). Koos was satisfied with the flexibility and time-saving routines in his regular teaching practice in speaking skills but dissatisfied with the materials and the need to search for suitable material (not related to the innovation). Koos intended to improve the type of speaking activities (other goal), to offer more challenging speaking activities (other goal) and to design alignment in speaking activities and appropriate improvement activities (procedure 1). In addition to teacher feedback, Koos also wanted to try out peer feedback, to give more feedback on speaking performances and to apply different feedback strategies attuned to learners' needs (procedure 3).

Koos performed a SpeakTeach lesson series in year 5 *havo*, in which the self-evaluation was done several times with plans for improvement and improvement activities leading to the final speaking activity (procedure 1 from score 0 to 2). This created an aligned set of learning activities and an iterative process of improvement. Compared to his regular teaching approach, Koos had added more speaking activities and improvement activities to achieve the speaking goal (where there had only been one speaking activity at first) so that there was a structure and more alignment. Another change from his regular teaching practice was that he allowed the students to work in a fully student-led way (procedure 2 from score 1 to 3). Koos did not give any feedback due to organizational and technical reasons (procedure 3). He was not very satisfied with his own implementation of the procedure designed to reach the intended goals, because he believed that he should have paid even more attention to the structure of the speaking activities (procedure 1) and that he had done too little about giving feedback and trying out peer feedback (procedure 3). However, Koos was satisfied that he had made the speaking activities more challenging (own goal) and with what he had learned from feedback strategies (procedure 3) and the organization of steering (procedure 2): "Students' steering was good, although students can abuse the freedom."

The teacher seemed to find SpeakTeach desirable but its implementation more difficult. Koos was more satisfied with the freedom of choice (procedure 2), feedback (procedure 3) and improvement activities in SpeakTeach lessons than in his regular teaching. As strong points of SpeakTeach Koos reported that "the method encourages the students to think more about what they are doing and how. They are more involved and that can have a motivating effect." Koos thought it was a disadvantage to have to use the technique for the recordings and

evaluations of the speaking performances. He was open to using parts of the SpeakTeach method in the future but did not yet know how and with which groups. In the subsequent school year, Koos reported that he had not applied any parts of the Speak-Teach method.

5.6 Conclusions and discussion

It is important for teachers' professional development to take both their goals and their current teaching practice into account (e.g. Kennedy, 2016a; 2016b; Janssen et al., 2013). This is not, however, self-evident when a professional development trajectory is aimed at learning to design and execute lessons according to a specific innovative approach. Innovative approaches are often formulated in abstract ideas and goals. As a result, it is often not clear to teachers how they can efficiently transform the innovation into concrete classroom activities that fit in with existing classroom demands and their other goals (Doyle & Ponder, 1977; Janssen, Westbroek, Doyle & Van Driel, 2013; Janssen et al., 2015; Kennedy, 2016b).

For this reason, this chapter focused on the question of how, in the context of a specific innovation, adaptive learning routes can be realized in which teachers can achieve both the goals of the innovation and their own objectives in a way that fits in with and builds on what they are already doing in class. To this end, two interrelated design principles, namely modularity and self-evaluation by teachers, were used to develop an adaptive professional development trajectory. The professional development trajectory in this study aimed to support foreign language teachers to expand their repertoire of adaptive feedback and differentiated activities for improvement in their regular teaching of speaking skills, because research has shown that adaptive feedback is desirable, but not common in teaching (Lyster et al., 2013; Yoshida, 2008; Gass & Mackey, 2012), due to practical constraints of the classroom ecology (Chapter 3; Corda, Koenraad & Visser, 2012; Fasoglio, 2015).

The aim of this study was to determine the extent to which the professional development trajectory, in the context of the innovation, was actually found to be adaptive according to teachers themselves. We also set out to investigate whether teachers achieved the goals of the innovation and their other goals to their own satisfaction by following the learning routes they had chosen themselves, and whether they intended to apply all or parts of the innovation in the future.

The results show that all of the teachers had goals in line with the goals of the innovation and that almost all of them also had other goals. In general, they were satisfied

with the achievement of both the goals of the innovation and their own other goals. These findings are unique because the implementation of innovations often conflicts with teachers' other goals and therefore often fails (Kennedy, 2016; Janssen et al, 2013). This study shows that the principles of modularity and self-evaluation in *SpeakTeach* made it possible to achieve both types of goals, those related to the innovation and teachers' other goals, at the same time. This was confirmed by the finding that nearly all of the teachers had firm intentions to continue to use the method in the future and reported after a year that they were indeed still using parts of it.

All of the participants reported that they had succeeded in expanding their teaching repertoire, except for one who did not implement one of the three procedures. The results demonstrate that the adaptive professional development trajectory allowed teachers to choose their own learning route in the context of the innovation. Teachers appeared to develop repertoire in different ways. First of all, some teachers, in the model of Bransford et al. (2005), stayed close to the dimension of routines, and built stepwise on routines from their regular teaching practice, inserting the procedures progressively. We called them *builders*. However, most teachers immediately took big steps. A number of them then took big steps back. We classified this group of teachers as *the innovators with big steps back*. These teachers were not always very satisfied with the realization of all their goals and seemed to be experimenting a lot to find an application that suited them. This did not mean that they were dissatisfied; over all they were very satisfied with the new teaching approach. We also distinguished a third classification: *innovators who refined*. Like the other group of innovators, they immediately experimented with the maximal design of the procedures. However, in contrast with the innovators who took big steps back after early experimentation, they consolidated and refined the application of the procedures. These teachers were generally satisfied with the achievement of their goals and the new teaching approach. In conclusion, three different routes were identified which were all successful in implementing the innovative teaching approach and in achieving the teachers' goals. We therefore conclude that teachers differ in how they expand their repertoires and that the professional development trajectory in this study was adaptive enough to do justice to these differences, allowing teachers to follow their own learning routes. This means that the model of Bransford et al. (2005) was not only used as a framework for determining whether or not teachers were

developing on both dimensions of routines and innovations, but the model was also used in this study to explore and describe several types of learning routes.

Two important limitations of our research have to be mentioned. The first is the fact that this study relied on self-reporting by teachers. This was because we were specifically interested in teachers' goals and their *perceptions* of the achievement of their goals. Moreover, the implementation of the procedures of the teaching approach was also based on teachers' data about their design of the lesson series. More objective or quasi-objective outcome measures, such as assessments, observations and student test scores, could be taken into account in future research. In a further study teachers' *behaviour* could be observed using a standardized observation form to find out how they implemented the teaching approach in their lessons. Teachers' perceptions of achievement of goals could be compared to more objective standards such as learners' outcomes.

A second limitation was the duration of the professional development trajectory. Although it lasted longer than the trajectories examined by many other studies on teachers' professional development (Borko et al., 2010; Van Veen et al., 2011), – in total seven months (three months of preparation in meetings and four months of implementation in the classroom) – and the teachers were asked whether they were still using the method a year later, research into learning routes requires even longer monitoring in order to be able to map developments in teaching repertoires. Moreover, the data were again obtained from self-reporting. It would be interesting to observe and follow the teachers in how they continued to use the method in practice and to investigate whether the patterns in learning routes persisted or changed over the course of time.

Implications for Teacher Education and Professional Development

It is generally agreed that teachers' professional development should be connected to teaching practice, focus on students' thinking and learning, stimulate active and collaborative learning and use modelling for innovative practices (Borko et al., 2010). Increasingly, an adaptive approach to professional development is being endorsed which attunes to the teachers' *goals* and the *current situation* in which they are working (Kennedy, 2016a; 2016b; Janssen, Westbroek, Doyle, & Van Driel, 2013), but that is difficult to realize in the context of an innovation. In their model of adaptive expertise, Bransford and Darling-Hammond (2005; 2007) suggest a stepwise progression that balances the development of routines and

innovation, but they do not discuss how such a learning route can be achieved and supported in a development trajectory.

This study proposed and tested two interrelated principles in order to create adaptive learning routes: modularity and self-evaluation by the teacher. These principles not only enabled teachers to relate an innovation to their current teaching practice, they also provided a way to implement the innovation. Kennedy (2016a) identified four pedagogies used to facilitate teachers to implement an innovation in their teaching practice, namely: providing prescriptions; providing strategies accompanied by a rationale that helps teachers understand when and why they should implement these strategies; providing insight; and presenting a body of knowledge. The approach in this study added a fifth pedagogy to the four distinguished by Kennedy; namely creating adaptive learning routes by means of modularity and self-evaluation in order to support teachers to implement an innovative teaching approach. Instead of developing an innovative teaching proposal in detailed prescriptions or more generic strategies, insights and knowledge base, the innovation is presented in recognizable building blocks –or modules of lesson segments – similar to the building blocks that teachers already use. This use of modularity allowed targeted self-evaluation and enabled teachers to see differences between their current teaching practice and the desired teaching practice. By recombining and adapting new and existing building blocks, teachers were able to expand their existing teaching practice. This study showed that an adaptive professional development trajectory based on modularity and teacher self-evaluation enabled teachers to follow their own learning routes working toward their own goals, which fit into their teaching practice, but were also aligned with the goals of the innovation.

