IV.1 The Analytical Short Film in Teacher Education
Report of an Accompanying Research Study in University Teaching

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This chapter presents the application of the method of the Analytical Short Film in teacher education seminars and the main results of an accompanying research. Central findings indicate that the usage of the method increases the students' abilities of reasoning on a scientific basis and improves their levels of reflection (Roters 2012).

Introduction

In the following, a research project conducted at the University of Music and Theatre in Leipzig, is presented. In this study two seminars, in which the cutting of "Analytical Short Films" (ASFs) by student teachers was central, were investigated. The aim of the research was to find out if and how such activity might influence their way of talking about "good music teaching". After giving a brief overview of the seminars' structures and methods, the main research questions are justified. Thus, methodology and main results are presented. The chapter closes with a short summary.

Seminar Method: Cutting an Analytical Short Film in a Seminar for Teacher Education

The method of the "Analytical Short Film", described in detail in Chapter I.3 *The Analytical Short Film* as a means of scientific communication, has (and is) also being used in teacher education seminars at the University of Music and Theatre in Leipzig. The course titled "Watching and understanding good music teaching" ("Guten Musikunterricht sehen und verstehen", Transl: DP), led and developed by Christopher Wallbaum, was investigated in the winter term of 2015 with 12 undergraduate students, most of whom were in their 3rd or 4th year of studies; and in the summer term of 2016 with 8 students from similar years.
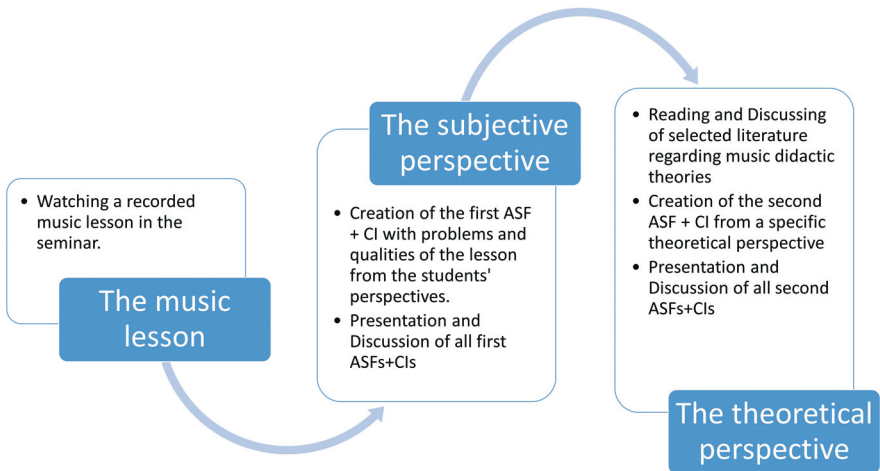
Fig. 1: General proceeding of the seminar

Both seminars started with the presentation of the method of the ASF and the watching of a chosen music lesson that was recorded with at least three camera angles[1]. A moderated group discussion concerning the topic "good music teaching" followed (2–3 sessions). At two stages in the following course of the seminar, the students had the task to create and discuss Analytical Short Films with the corresponding "Complementary Information" (CI)[2]. In the first creation of an Analytical Short Film the students had the task to "show qualities and problems of the music lessons" with their 3-minute short film reflecting their own perspective. These short films were presented together with the corresponding CI and thus discussed in the seminar plenum (3–4 sessions). Afterwards, the students were invited to take on a specific scientif-

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1   Both lessons are included on the supplied DVDs of this book. The winter term worked on the Scotland-Lesson whereas the summer term worked on the Estonia-Lesson.

2   For details regarding the Analytical Short Film please refer to Chapters I.2 *Videography on the way …* and I.3 *The Analytical Short Film.*

3   For the seminar working on the Scotland-Lesson specific perspectives from the Scottish music didactic researchers Black and Wiliam 1998 and Sheridan and Byrne 2013 were used whereas the seminar working on the Estonia-Lesson discussed several perspectives and official documents from German music pedagogic research: Jank 2010; Ministerium für Kultus, Jugend und Sport Baden-Württemberg 2016; Niessen 2010; Rolle 2010; Sächsisches Staatsinstitut für Bildung und Schulentwicklung 2004; Stroh 2010; Wallbaum 2010b.

ic view of the lesson and for the course of 2–3 sessions, selected literature[3] was read and discussed in order to find one or more perspectives for the cutting of new Analytical Short Films[4]. As in the first part of the seminar, the Short Films and their corresponding CIs were presented and discussed in the seminar plenum. The last session closed the seminars with a group discussion revisiting the question of "what is good music teaching?". To make the seminar structure more clear, the following table shows the plan for the winter term seminar with additional comments on details in the footnotes.

Session	Main Content	Methode
1	Opening: The Analytical Short Film	1) Presentation of the method of the ASF+CI on examples. 2) Discussion of the method. 3) Presentation of the task for the first Analytical Short Film: "Show qualities and problems of the music lessons".
2	The "Scotland-Lesson"	1) Watching of the Scotland-Lesson with the Task: Note "remarkable" scenes including time and angle. 2) Group discussion I: "Is this good music teaching?" on the basis of the notes made by the students.
3	"Good Music Teaching?"[5]	1) Open task: "Write *your utopia* of good music teaching." 2) Additional discussion on the topic "good music teaching" on the basis of the texts formulated by the students.

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4 In contrast to the creation of the first ASFs and CIs, the second work phase was always accomplished in teams. The winter term working on the Scotland-Lesson thus created four Analytical Short Films that illustrated specific aspects of the texts from Black and Wiliam 1998 and Sheridan and Byrne 2013. For the summer term working on the Estonia-Lesson it was decided to cut only one short film that specifically embraced the perspective articulated in Stroh 2010.

5 This session should not be seen as mandatory in the seminar concept. However, in the special case of the winter term it proved to be useful to dig deeper into the topic.

4	Technical Aspects of cutting an Analytical Short Film	Explanation of basic video-cutting techniques in the program *Vegas Pro 10.0* on the material from the Scotland-Lesson[6] in a PC pool.
5	The subjective perspective: Cutting the first Analytical Short Film[7]	Students work on their laptops[8] or on the supplied PCs on the basis of their notes from seminars 2 & 3. Task: "Create an Analytical Short Film + Complementary Information (including title) showing the qualities and problems of this music lesson from your individual perspective."
6 7 8	The subjective perspective: Presentation & Discussion of the first ASFs + CIs	Ca. 3–4 presentations per session. Possible proceeding of one presentation: 1) giving the title (1'), 2) watching the ASF (3'), 3) presentation of the CI (3'), 4) watching the ASF again (3'), 5) short discussion (10').
9	The subjective perspective: Summary	1) Resuming Discussion of the individual ASFs+CIs. 2) Group discussion II: "Is this good music teaching?"
10 11	The theoretical perspective: Scientific publications	1) Discussion of ASF+CI from a Scottish music didactic researcher. 2) Creation of posters through students and discussion in groups and in the plenum regarding two texts from the Scottish music didactic discourse (Black and Wiliam 1998; Sheridan and Byrne 2013).
12	The theoretical perspective: Additional Material	Discussion of main content of the additionally raised material for the Scotland-Lesson in regards to perspectives from the theory-texts.

13	The theoretical perspective: Operationalisation of theories	1) Extraction of main perspectives the texts could give for the creation of Analytical Short Films. 2) Planning of the individual Analytical Short Films.
14	The theoretical perspective: Presentation & Discussion of the second ASFs + CIs	Ca. 2–3 presentations per session. Possible proceeding of one presentation: 1) giving the title (1'), 2) watching the ASF (3'), 3) presentation of the CI (3'),
15		4) watching the ASF again (3'), 5) discussion (20').
16	The theoretical perspective: Summary	Group discussion III: "Is this good music teaching?"

Fig. 2: Detailed proceeding of an exemplary seminar

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6 This professional program was chosen for use in the seminar due to 2 main aspects: (1) Professional programs offer a wider array of freedom in the creation of the Analytical Short Film than free or low-cost programs like the Windows Movie Maker or Magix Video Deluxe. These programs, although easier to learn and less expensive, often use pre-defined templates for specific effects like additional texts or zoom. They may give a "nicer look" to the video, but yield the danger of shifting the statement of the Analytical Short Film in an unwanted direction. The only low-cost video editing program known to us that offers a more free use of these effects at least in parts is Apple iMovie. (2) In contrast to other professional programs in the Windows environment like Adobe Premiere Pro, Sony Vegas Pro is less expensive and is easier to learn. If working in a multi-platform environment (Windows + Mac), we recommend the usage of Adobe Premiere Pro.

7 It has to be remarked that the bigger part of the video cutting works was done on an individual basis by the students outside of the ordinary seminar time. Students speak of around 10 hours of work for the creation of the first Analytical Short Film – this was covered by the workload of the seminar but should be taken in account in the planning of similar seminars.

8 The licenses of the video cutting program allowed the installation of the program on two computers simultaneously if both were not used at the same time. Because of this, the program was also installed (only during the course of the seminar) on the private laptops of some of the students.

Guiding Questions of the Scientific Accompanying Research

Although video technology in general is being increasingly used in university teaching, the active usage of video by students seems to be still hardly developed (Kaltura Inc. 2015, 1). In recent years, the potential of this active usage that "creates new potential for advanced knowledge building" is forecast (Zahn et al. 2009, 596). Here, active usage of video is understood as going beyond its use as an object of reference (Pauli and Reusser 2006, 792) towards scenarios in which students themselves edit and present video material in seminars (see Kaltura Inc. 2015, 8). Special potential is being seen in the reflection of the students' own or other teachers' teaching. This has been practiced with success for several years now in the Diver project (Pea et al. 2004) where students analyse 360 degree classroom videos (partly of their own teaching) in a collaborative setting (Pea and Lindgren 2008, 240). Especially in German-speaking countries, documentation or reports on research of comparable projects are scarce.

In this research project, the potential in the active usage of video in teacher education, in particular with regard to its effect on the students' reflections on classroom teaching in music lessons, is examined. Reflection on classroom teaching is a requirement not only of education policy in Germany (Roters 2012, 15). In particular the development of a theory-guided and analytical reflection, as well as self-reflection and the reflection of empirical findings, represent central demands e.g. of science and education councils in Germany (Roters 2012, 62).

Following the idea that "the perception categories (of future teachers) are formed early, partly even in their own school experiences" (Roters 2012, 100, transl. DP) the research design is based on the reflection of students particularly with regard to their own perception of classroom teaching. It is assumed that students often refer to an implicit knowledge base which leads their perception when reasoning on teaching practice (see Charmaz 2011, 185 and Wallbaum 2013). An appropriate topic for such reasoning can be seen in the concept of "good music teaching": In music pedagogic teaching practice, as well as in scientific discourse, there exists a multitude of quite divergent and often normative approaches to ideas of quality in classroom music teaching (Wallbaum 2010a).

From these considerations the central research question is formulated as follows: *How does the argumentation of students on the topic "good music*

teaching" develop through the creation and use of Analytical Short Films in a seminar?

This research question was followed in five sub-projects partly supported by three student researchers in the sense of researcher triangulation[9] (Flick 2008, 14):

Project 1	On which topics do the students refer when reasoning about music teaching? How do these topics develop throughout the course of the seminars?
Project 2	Is the students' reasoning based on subjective or theoretically guided views? How do these subjective or theoretical perspectives develop throughout the course of the seminars?
Project 3	On which levels of reflection (see Roters 2012, 258–260) are the students arguing? How does the distribution of these levels change throughout the course of the seminars?
Project 4	Does the role of individual debaters (see Schindler 1957) change throughout the course of the seminars?
Project 5	What are the students' processes when cutting an Analytical Short Film from a music lesson on video?

Research Methods

The concept of triangulation (see Flick 2008, 12; Reusser and Pauli 2013, 311–312) was of central relevance to the whole research project. Aside from working in a team dealing with the central research question from different perspectives (Researcher Triangulation), differing research methods were applied in the investigation: open qualitative methodologies such as grounded theory (Strauss 1998) were used as well as more closed and deduction-led

concepts[10] following the qualitative content analysis (Mayring 2010) (Method Triangulation). In addition, a wide range of types of data were collected to achieve Data Triangulation (see Flick 2008, 13): the data raised in 2 semesters with a total of 20 students includes transcribed group discussions throughout the course of the seminars based on the topic "good music teaching"[11]; participant observation logs of every seminar session (see Breidenstein 2006, 31); online and offline questionnaires[12]; individual guideline interviews with the students[13]; and copies of the students' products like the Analytical Short Films including the corresponding Complimentary Information.
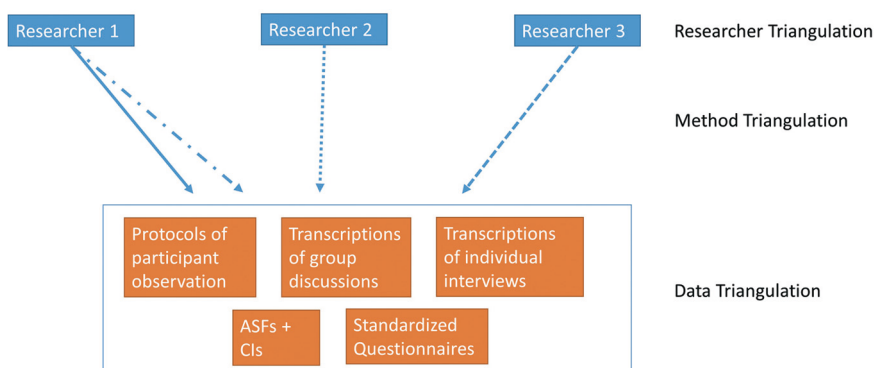

Fig. 3: Triangulation principles, simplified (see Flick 2008)

In the following sections the methodical approach of each research project is outlined briefly.

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10 Regarding the question of theory influence in grounded theory research see Strübing 2008.
11 3 in the winter term and 2 in the summer term. They were part of the seminar-setting.
12 The questionnaires raised context data such as studied subjects, year of study and didactic seminars visited in the same semester and previously in order to control external influences. A second part of the questionnaires was concerned with technical background of the students and open-ended questions concerning the cutting of the Analytical Short Films.
13 The guidelines were mainly based on questions regarding the creation and influence of the Analytical Short Film on the students.

Topics of discussion (Project 1) and "Subjective or theoretically guided views?" (Project 2): In order to meet the requirement set out in the section above regarding the collection of implicit knowledge of students, grounded theory methodology in a constructivist approach was focused upon evaluating the data (Charmaz 2011; Strauss 1998). We refer to grounded theory as it yields a range of methods that makes it possible to create concepts[14] directly from the raised data while at the same time minimizing the researcher's bias (Strübing 2008). Additionally, following Charmaz (2011, 185) and Vogl (2014, 582), we assume that collective meanings often implicitly guide a situation like a group discussion, and that it is one goal of grounded-theory-oriented analysis to make these collective meanings explicit. In the research practice, this meant first focusing each transcribed group discussion with the technique of open coding (see Strauss 1998, 95–100) in order to isolate a number of concepts behind the data. Afterwards, relations between these concepts were built following the process of axial coding (see Strauss 1998, 101–115) in order to identify central, discussion-leading topics. These topics were compared between the group discussions over the course of a semester. This comparison led to first theses regarding the development of the argumentation of the students. Upon consideration of the additional collected material like the short films created by individual students or notes from the participant observation logs, these hypotheses led to central findings.

Levels of reflection (Project 3) and Role of individual debaters (Project 4): The research issues which were based on certain theoretical considerations (level of reflection after Roters 2012 or discussion structures after Schindler 1957) were investigated following the "structuring qualitative content analysis" (see Mayring 2010, 92–109). Preliminary categories derived from the literature were formulated more precisely in respect to the material. Afterwards, the entire material of the group discussions was analysed in respect to these categories. Upon analysing the distribution of these categories over the group discussions in one semester, preliminary theses were formulated. As evidence that these developments can be attributed to the seminar and not any other activities the students had followed in this time, the additionally collected material was examined for appropriate relationships.

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14 Briefly speaking, a concept can be an idea, referring to e.g. actions, happenings or similar, that has been brought up by the researcher through intensive comparison within the raised data, see Strauss 1998, 54–55.

Proceedings when cutting Analytical Short Films (Project 5): To understand what the students actually do in the formulated task of creating Analytical Short Films, we used grounded theory methodology (Strauss, 1998). In contrast to the research topics above, this project primarily worked on the individual interviews with and questionnaires from the students. First, central concepts regarding the cutting process were identified, and secondly interrelations between these concepts were identified on a per-student basis. Finally, the research team used these results to draw conclusions on the impact of the Analytical Short Film.

Analysis and Results

As a detailed presentation of all results would go beyond the scope of this brief presentation, the following section first presents the results of the research projects 1, 2, 4 and 5 in a brief overview. Afterwards, results and the process of analysis of project 3 (Levels of Reflection) is shown in detail.

Project 1 (“Topics of discussion”) analysed the group discussions in which six dominant topics used in the students' arguments about the lesson were identified: *Authenticity of the teacher, Teacher-student-relation, Methods, Outcome of the lesson, Structure of the lesson* and *Referral to didactic theories.* Analysing the quantitative distribution of the codings assigned to these topics, *Referral to didactic theories* is the only one that can be identified more often[15] at the end of both semesters (see below Thesis I). Besides, the usage of all statements for judging the lesson as “good”, “bad” or – in a more descriptive manner – “neutral”, were analysed: only the statements coded with *Referral to didactic theories* were mainly[16] used for a “neutral” description of the music lesson (see below Thesis II). Thesis I is also supported by findings from ***Project 2 (“Subjective or theoretically guided views?”)***[17].

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15 To give a brief idea, averaged over both semesters, *Referral to didactic theories* is coded only once in the first group discussion and 17 times in the last group discussion while more prominent topics like *Methods* develop from 55 to 31 codings in the same time period.

16 About 53% as oposed to an average of 22% in all topics.

17 In the first group discussions, averaged over both semesters, 42 codings with subjective argumentation stand next to 22 codings with theoretically-guided arguments. In the last discussions, both types of arguments appear in roughly the same number of codings (23:23, averaged over both semesters).

Throughout the examinations in *Project 4 ("Role of individual debaters")*, a special issue arose. Although notable developments in the group discussions could be identified in the discussion structure of one group, no supporting documents from the additionally collected material could be identified. However, the researcher also noted that, in the course of one semester, the students started to reflect on the music lesson in a more analytical way which suggested a multitude of viewpoints. These findings could thus support Thesis III from Project 3 (compare below).

The grounded-theory-oriented analysis of *Project 5 ("Proceedings when Cutting Analytical Short Films")* allowed three main categories with three sub-dimensions each to emerge: *Strategies of content conception*[18], *technical pre-knowledge and its development* and the *satisfaction with the aesthetic quality of the Analytical Short Film*. It could be shown that most of the students developed a theory-like concept which underscores the statements of their produced ASFs during or after the cutting of their Analytical Short Film. Together with other observations this leads to Thesis IV which states that the awareness of a subjective theory[19] of "good music teaching" is promoted through cutting an Analytical Short Film. Additionally, correlations between the sub-dimensions of the three main categories showed that the content of the Analytical Short Film on the one hand, and on the other hand the satisfaction with its aesthetic quality seem to stand in direct relation to the technical cutting skills of the students (see below Thesis V).

Project 3: Levels of Reflection

The way students reflect teaching practice was thoroughly investigated by Bianca Roters in an international comparative setting. She distinguished descriptive, instrumental and productive levels of reflection (Roters, 2012). *De-*

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18 The research identifies three different content conception strategies. Briefly explained they can be summarised as follows: Students from sub-category A developed the concept of their ASF after cutting, those from sub-category B developed their concept on an intuitive basis at the beginning of cutting while students from sub-category C developed a theoretically based concept before cutting their Analytical Short Film.

19 Referring to Dann 1994, 166 a subjective theory is understood as a (1) relatively stable, (2) partly implicit cognitive structure which, (3) similarly to scientific theories, shows implicit ways of reasoning.

scriptive reflection on teaching fixes on critical and rigid description without referring to further contexts (pupils' background, classroom management, etc. …). *Instrumental* reflection involves these contexts and takes the ambivalence of viewpoints into consideration. A student reflecting on the *productive* level also strives to point out alternative actions and approaches (see Roters, 2012, 183–186). For project 3, the students' statements from the group discussions were categorized using the mentioned reflection levels[20]. The numbers of statements per reflection level and student were recorded. Finally, (arithmetical) averages of the respective semesters were formed for giving a better overview. The following diagrams give information about how many statements per student, averaged over all students in one semester in a given group discussion can be assigned to either the descriptive, the instrumental or the productive level.
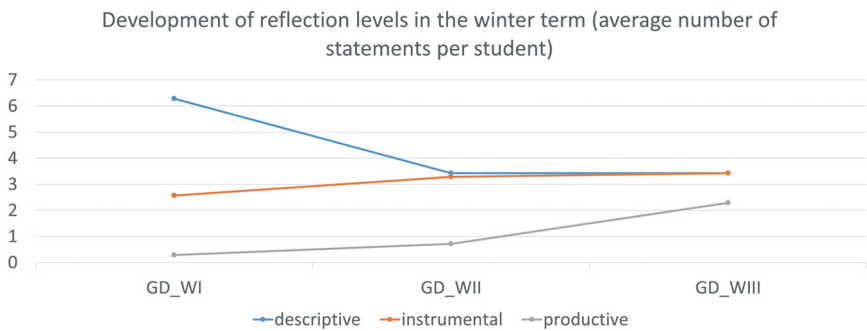

Fig. 4: Development of reflection levels in the winter term (average number of statements per student, the group discussions are identified by their term and their number. For instance, GD_WI refers to group discussion 1 in the winter term.)

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20   A detailed list of examples in Roters 2012, 258–260 served as a guide for this evaluation.

Development of reflection levels in the summer term (average number of statements per student)
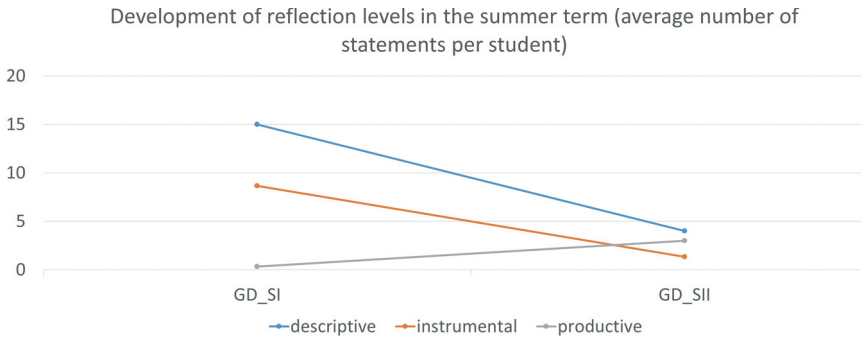

Fig. 5: Development of reflection levels in the winter term (average number of statements per student, the group discussions are identified by their term and their number. For instance, GD_SI refers to group discussion 1 in the summer term.)

In both semesters, students tended to reflect more on the productive level towards the end of the term whereas their instrumental or descriptive reflection drops or flattens out. To fend off the assumption that these observations may be attributed to influences outside of the seminar, additional evidence was identified. An indication of this kind can be found in the results of Project 5 (Proceedings when cutting an Analytical Short Film): This project could show that the uncovering of an individual subjective theory of music education is promoted through the creation of the ASF (compare Thesis IV on the next page). It can be assumed that a student who becomes aware of his or her own implicit way of understanding and explaining classroom practice is expected to be more able to make predictions of teaching practice (on the basis of these now explicit theories) than in the case when these arguments remain in their sub-consciousness. Prediction of teaching practice is seen as one aspect of the productive reflection style (see Dann, 1994, 166; Roters, 2012, 183–186). Beyond that the increasing use of educational theories in the students' arguments (a finding from Project 1, see also Thesis I in section 55) also favours building a productive reflection style as the students can refer to their predictive power.

With this we can conclude Thesis III: Through the usage of the method of the ASF in seminars the development of a productive reflection style that emphasises alternative solutions is supported.

Summary

The following five theses could be extracted from the accompanying research:

I.	Through the usage of the method of the ASF in seminars, music lessons are increasingly being judged on the basis of music didactic theory. The students' reasoning also becomes more theory-based. (Projects 1 and 2)
II.	Through the usage of the method of the ASF in seminars, students especially use a theory perspective for neutral judgements of classroom practice. (Project 1)
III.	Through the usage of the method of the ASF in seminars, the development of a productive refection level (Roters 2012) that emphasises alternative solutions, in addition to a critical context-sensitive viewpoint, is supported. (Projects 3 and 4)
IV	The awareness of a subjective theory of "good music teaching" is promoted through cutting an Analytical Short Film. (Project 5)
V	The technical skills of the students have a significant impact both on the aesthetic satisfaction of the students with the design of the Analytical Short Film and on its content. (Project 5)

Under specific conditions, these theses can be further refined: if a scientific perspective on a lesson is understood as using theories not for normative judgement of classroom actions but for explaining and understanding these happenings on a neutral basis, we can state the following:

(I + II)	Through the usage of the method of the ASF in seminars music lessons are increasingly being discussed from a scientific perspective.

If, apart from this, becoming aware of a personal theory of teaching is seen as a sufficient (but not mandatory) condition for the productive reflection level, we can state:

(III + IV)	Through the usage of the method of the ASF in seminars the development of a productive refection level (Roters 2012) that emphasizes alternative solutions in addition to a critical context-sensitivity is supported.

Beyond the cutting of Analytical Short Films in teacher teaching seminars in the way described above the seminar method is recommended also in university subjects where other aspects of practice are central. However, it should be pointed out that enough time should be invested in the proper training of the students in video editing and the technical preparation of the seminar.

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