Exploring Variation Theory in form-focused language teaching. Teaching the present perfect in upper secondary EFL

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- introduces principles of Variation Theory
- presents critical aspects and critical features for the use of English present perfect
- shows and exemplifies how Variation Theory can be applied to teach the tense/aspect combination
- empirical results show significant learning progress

1. Introduction

Since the 1970s there has been a development away from only form-focused teaching with its emphasis primarily on grammatical competence and the application of deductive teaching methods, towards today's communicative language teaching. Communicative language teaching, with mainly though not exclusively inductive teaching of form, is meant to improve grammatical competence in the interest of enhancing communicative competence (Richards, 2006). The Austrian school curricula for modern languages mirror this development (BMB, 2015).

Since 2013, a form-oriented test format, which focuses on vocabulary and grammar, has been included in the standardised school leaving exam for English (year 12 or 13) in Austria.[2] This test part, called "Language in Use", consists of four texts that use either multiple choice, editing, banked words, open bank, or word formation formats. For some of these items, the students have a choice between different forms of the same verb and are required to make the correct grammatical choice in order to match the meaning of the context given in the text. According to the University of Innsbruck's "Language in Use test specifications", the purpose of the Language in Use test part is "[t]o determine whether the test taker is at B2 in terms of their knowledge of grammatical and lexical structures". (University of Innsbruck, n.d., p.1). The test takers are expected to be able to, for instance, "**recognize** the appropriate choice of tense with a relatively high degree of accuracy" (University of Innsbruck, n.d., p.1). Hence, it can be

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[2] For an example past Matura papers, including the "Language in Use" test format, see: https://www.srdp.at/ → lebende Fremdsprachen → schriftliche Prüfungen → frühere Prüfungsaufgaben

argued that a clear conceptualisation and awareness of, for example, tenses and aspects can be of great help when approaching some of the test items.

The necessity of effectively integrating form-focused instruction into a foreign language programme, thus, becomes obvious, as the absence of explicit instruction not only seems to lead to difficulties in completing parts of the Language in Use test successfully, but also causes motivational problems, as students feel that they cannot prepare themselves or do not get well-prepared in class for that part of the test.

In the literature (Ellis N., 2005) on the teaching and learning of English as a second and/or foreign language, arguments in favour of including some form-focused teaching in communicative language teaching have been widely discussed since the 1990s (Celce-Murcia, 1991; Ellis R., 1993; Long & Crookes, 1992; Spada, 2008; Thompson, 1996; Widdowson, 1998; Williams, 1995) and research suggests that declarative knowledge and some focus on form can indeed lead to improved, more accurate performance (Williams, 1995; Spada & Lightbown, 2008). Ortega (2009) points out that instruction targeting explicit processes, "can help summon conscious attention in ways needed to optimize the learning of particularly challenging generalizations, such as those that involve low salience or high complexity, and those that depart from what learners expect based on their L1" (p. 137), criteria which match the application of the present perfect simple and progressive, the foci of the research units of the study presented. A crucial question that remains to be answered, however, is HOW this form-focused instruction should proceed.

This study has been undertaken with the aim of exploring the potential of Variation Theory in this respect. So far, the cognitively-oriented Variation Theory has been shown to lead to significant learning progress for students in a number of curricular areas. Key literature, particularly by Mun Ling Lo (2008, 2012), who developed this learning theory into a pedagogical tool, provides interesting insights into the conceptualisation of Variation Theory, as well as its application in various subjects. However, most examples of how Variation Theory can be applied are taken from natural science classes. Studies showing that Variation Theory can also be successfully used in form-focused instruction of English language classes are only briefly mentioned (Lo, 2012). How exactly Variation Theory was implemented, to teach, for example, the English tenses and aspects, has so far not been clarified by Lo, nor by other researchers in the field (Holmqvist, Gustavsson, & Wernberg, 2007; Holmqvist, Mattisson, Lindgren, & Svarvell, 2008).

In order to address this gap, this PhD project, implements and tests Variation Theory for teaching the present perfect to Austrian upper secondary students, who are at CEFR B1 level at this stage[3]. Students taking part in this study had been learning English for at least 5 years in the Austrian school system, and had thus repeatedly been confronted with the rules of formation and application for the present perfect simple and progressive based on the CLT-oriented curriculum and textbooks. Variation Theory was thus not employed as a pedagogical tool for the first introduction of a grammar point but as a means of helping students to further conceptualise, organise and reflect on existing knowledge about the tenses. The present perfect was selected as the study's focal grammar feature because it is one of the most challenging grammar issues for EFL students (Schwarz, 1988; Yao & Collins, 2012). As its complex rules of application are not picked up easily and the application of Variation Theory promises to lead to an "expansion in awareness" (Åkerlind, 2015, p. 6) the research hypothesis was developed states that a teaching unit based on the principles of Variation Theory would

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[3] In reality, within any group at this level one is likely to find learners in the A2-B2 range.

help students develop a clearer understanding of which meanings can be expressed with the present perfect simple and progressive. This clearer conceptualisation should not only help them in the Language in Use part of the Matura, but, hopefully, also in the text production part, particularly if they have time to reflect on the language they have produced, when proofreading the texts they have written. In five Action Research cycles Variation-Theory-based materials for teaching the present perfect to upper secondary students at Austrian schools were designed and tested. Multiple choice test results were compared to those of a control group and think alouds with follow up questions were conducted with a selection of students in order to find out why they made certain choices in the tests. Results show that Variation Theory is indeed a powerful tool for teaching a complex concept like the present perfect and has led to an expansion of awareness. Texts students produced after the research lessons suggest that they had a positive effect on their production skills with regard to the accurate application of tenses and aspects. However, producing semantic evidence of this effect is beyond the scope of this study and would need to be carried out in a follow-up study.

The present article will provide a brief insight into Variation Theory, the design of my study, as well as first results mainly based on research cycle 2 (hereafter RC2). For the reasons of scope, RC2, being representative for the following cycles, has been selected for this first insight into the project.

2. Variation Theory

The roots of Variation Theory (hereafter VT) lie in the phenomenographic approach in education, in which different perceptions of the same phenomenon are mapped and described (Holmqvist et al., 2008). The goals of VT as a learning theory are to explain how learning takes place and answer the question of what is required to teach a particular *object of learning*, "by which we mean the knowledge and skills that we hope the pupils will develop" (Lee, 2009, p. 19). Consequently, VT goes one step further than Phenomenography, as "Variation Theory makes it possible to understand how different experiences can be converted into a common understanding of a learning object" (Holmqvist et al., 2008, p. 32).

The starting point for this line of research was the question why some teachers are more successful in bringing about learning than others. To answer this question, pairs of lessons of teachers attempting to teach *the same thing*, or *object of learning*, to different classes of students were compared in a project in 1998. The outcomes were significantly different: by the end of the lessons the students had learnt *different things*. What had become evident was, firstly, that the students had learned the *enacted object of learning*, rather than the *intended* one and secondly, the enacted object of learning depended on the teachers' understanding of the object of learning and the features they believed to be characteristic of it (the *critical features*) (Lo, 2008; Marton & Tsui, 2004).

Furthermore, research has shown that teachers often fail to identify all the features that are critical for all the students' understanding at first attempt. In the course of a lesson it often becomes apparent through students' questions or answers to the teachers' questions that not everything that is necessary for the students' understanding has been identified in advance. Thus, new critical features (features that lead to misunderstanding) are identified by the teacher and new patterns of variation must be developed and tested until all of the critical features and patterns that lead to understanding have been found and applied successfully (Lo, 2008, 2012).

In order to test and elaborate the theory regarding the aforementioned critical features and patterns of variation, the Learning Study approach (a type of Lesson Study applying VT) was created in 1999. In the pioneering project "Catering for individual differences – Building on Variation", a research team, comprising school teachers and academics from the University of Hong Kong and the Hong Kong Institute of Education, collaborated in developing a systematic research process based on VT. In the seven-year project, 260 Learning Studies, developed by the research team, showed that VT is a useful guiding principle for pedagogical design (Lo, 2012).

In 2005 the project team engaged in a further three-year-project, called VITAL, "Variation for the Improvement of Teaching and Learning". Supported by the Educational Bureau of Hong Kong SAR Government, 120 schools participated in 120 Learning Studies. The studies included the major subjects of the curricula in primary, secondary and special schools, including the subject English (ESL), covering objects of learning such as wh-questions, tenses, the passive, indirect reported speech, past tense, writing sentences and paragraphs and some more (Lo, 2012).

In these studies it became apparent that (1) through the successful application of VT the performance of all students who had attended these lessons had improved in the standardised test taken by all students in Hong Kong (HAKT)[4], and (2) the gap between the high and low achieving students had narrowed. This outcome can be attributed to the fact that the teachers had become more aware of and sensitive to the needs and difficulties of their students and had found a pattern of variation that helped students, including those who had previously had difficulties, to discern the object of learning (Lo, 2008).

Outside the Hong Kong context, it is above all Holmqvist-Orlando's publications (e.g. 2007, 2008) which show that the approach has been adopted also in other countries, such as Sweden, for the purposes of research and pedagogy. Furthermore, the application of VT for curriculum design at the University of Canberra, Australia, indicates that VT is not limited to lesson design only (Åkerlind, 2014).

2.1 Basic principles of VT as a pedagogical tool

As indicated above, VT focuses on the way people experience a phenomenon, and on the principle that learning is made possible by distinguishing the critical aspects of a phenomenon. Critical aspects are concepts which need to be comprehended by learners so that they are able to achieve the object of learning, which in my study is the development of more clarity about what meanings can be expressed by the English present perfect simple and progressive. "These [critical] aspects are seen against the background of variation that enables pupils to discern aspects of the learning object that have not previously been obvious" (Holmqvist et al., 2008, p. 32). In VT, learning means changing the way people see or understand something (Lo, 2012) and one has learned something when one is "capable of being simultaneously and focally aware of other aspects or more aspects of a phenomenon than was previously the case" (Marton & Booth, 1997, p. 147).

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[4] Information on the Hong Kong Attainment Test: http://www.edb.gov.hk/en/edu-system/primary-secondary/spa-systems/secondary-spa/general-info/Pre-S1-HKAT.html
http://pl.popularworldhk.com/file/file/public/PL/pl_pri/pl_pri_eng/pl_pri_eng_AT_Mock-Papers/AT2012_E_P6.pdf

Åkerlind (2015) explains,

> From a Variation Theory perspective, learning is seen as an expansion in awareness, in which students become aware of critical aspects of a disciplinary concept, skill or practice [...] that they had not previously noticed. The theory introduces key principles of pedagogical design intended to enable students to progressively expand their awareness of the different aspects of disciplinary concepts, and of the relations between those aspects. (p. 6)

VT is based on the assumption that we experience the world differently due to our partial experiences of reality (Marton & Booth, 1997) and on constructivism, where learning is seen as an active, constructive process in which everyone creates their own subjective reality (Ertmer & Newby, 1993). Knowledge originates in personal experiences and hypotheses we form. On the instructional level, Lo (2012) points out, VT is compatible with three core learning principles commonly agreed upon and supported by researchers:

1. Teachers must draw out and work with the existing understanding that their students bring with them.
2. Teachers must teach subject matter in depth, providing many examples in which the same concept is at work to give a firm foundation of factual knowledge.
3. The teaching of meta-cognitive skills should be integrated into the curriculum in a variety of subject areas. (p. 13)

In contrast to other learning theories/approaches, "Variation theory focuses on the content of what is to be taught, rather than on other structures or artefacts that influence learning, such as socio-economic preconditions, linguistic factors, gender, etc." (Holmqvist et al., 2008, p. 32). This does not mean that those other factors are insignificant but it is the way in which an object of learning is presented in the classroom that determines what pupils can learn and what they will (not) be able to discern (Holmqvist et al., 2008). That is to say, it is necessary to find a teaching approach which helps to enact the pattern of variation, providing an opportunity to experience variation of critical features, and keeps the learners engaged and interested in the object of learning. What is important to point out here is that there is not only one correct teaching approach – the same pattern of variation can be enacted via a variety of teaching strategies and learning activities.

2.2 Three decisive factors in the learning process: variation, discernment, simultaneity

VT's basic theorem is that in order to learn and understand a phenomenon, *variation* is required. We cannot discern a particular quality only based on sameness. We can learn from sameness to make generalisations "but we can only see sameness *once we are aware of the quality in question*, not before. […] Without experiencing difference, it is impossible to discern similarities. Thus, in addition to showing similar examples, teachers must show non-examples" (Lo, 2012, p. 84-85). Only then do we notice differences, i.e. a deviation from the pattern we consider normal, and are able to identify critical aspects of an object of learning. Too much variation, however, is counterproductive, as we cannot discern a critical feature if other features are not kept constant or invariant (Holmqvist et al., 2008). So, to find the pattern of variation that enhances learning best is the aim of the teacher who wants to apply VT successfully.

Discernment is, next to variation, the second integral component of VT. It it is the act of noticing features that were previously unnoticed and in the background and thus requires experience of variation. The following example of discernment is given by Holmqvist et al. (2008): in a past Learning Study project it became obvious that some Swedish students failed to differentiate between different forms of *to be* because in their mother tongue there is only one form used, independent of the subject of the sentence. Even though they had encountered *to be* often before the lesson in which it became the object of learning, learning had not taken place because they had not discerned the critical features that determine the correct use of the different forms of *to be.* Only when they were taught with the right pattern of variation, did they have the opportunity to learn and discern the right application of the forms of *to be.* Before that, they had not been aware of what they considered "normal" and they did not question their way of seeing it (Holmqvist at al., 2008). When teaching, students must be encouraged to compare their old way of seeing with the new way of seeing presented by the teacher because otherwise they may return to their original way of seeing (Lo, 2012). Thus, the starting point when designing a lesson based on VT must always be the pre-knowledge and pre-conceptions of the students.

Simultaneity, the third integral factor of VT, is another requirement for learning because eventually all of the critical features and their relationships to each other and the world need to be discerned at the same time. Only then an object of learning has been completely understood. This state of grasping and experiencing the critical features and the whole as an "undivided entity" is called "fusion" (Lo, 2012) and needs to be reached in the end.

In the example below this would mean that in order to use *is* correctly, students must understand why *are/am* and *be* are wrong in this case (Holmqvist at al., 2008). Experienced discernment only takes place if at least two critical features differ simultaneously while the rest remains the same (Lo, 2012). In a pattern of variation that is supposed to facilitate discernment only the pronoun and the corresponding form of *be* would be varied and all three sentences would be shown to the students at the same time.

e.g.   *He is* a nice person. vs,

         I am a nice person. vs.

          You are a nice person.

To sum up, the teachers need to identify those critical features that define an object of learning, including those which cause learning difficulties because if we want the learners to see the object of learning the way we do, we need to make them focus on the same features – the critical features. Next patterns of variation which are based on the above principles are created, particularly focusing on those critical features students have difficulties with. Finally, teachers ensure that all of the critical features and their relationship to each other and the world have been understood.

In the context of the present study it was thus necessary to identify critical features of the present perfect and to design units of instruction enacting patterns of variation and invariance that facilitate discernment on the part of the students. The didactic units have been tested with several learning groups by the researcher herself as well as other teachers. All in all five action research cycles were conducted. The study design, examples of patterns of variation and critical features of the present perfect, as well as first results are discussed in the remainder of this article.

3. Action research

The chosen method of research is action research for this project, as I am a teacher who does educational research in class, not only in order to contribute to filling the research gap with regard to the applicability of VT, but also with the aim of exploring new possibilities in the teaching of grammar.

Reason and Bradbury (2001) define action research as

> a participatory, democratic process concerned with developing practical knowing in the pursuit of worthwhile human purposes. [...] It seeks to bring together action and reflection, theory and practice, in participation with others, in the pursuit of practical solutions to issues of pressing concern to people, and more generally the flourishing of individual persons and their communities. (p. 1)

Conducting pedagogical action research aims for improving teaching and learning by defining an issue or problem, gathering data to explore the issue and taking action to address it (Norton, 2009). Thus action research "brings theory closer to practice" as it contributes "to both social practice and development of theory" (Kember & Mc Ka, 1996). In the processes of testing the theory in practice as teacher and researcher, I find myself in a double role which is characteristic for action research and makes other methods of research, which require the detachment of the researcher, impossible.

Apart from the double role of the teacher/researcher, another characteristic of action research is its cyclical nature of strategic planning for the improvement of practice and performance, implementation of the plan (action), observation and documentation of the effects of the plan, followed by evaluation and critical reflection which leads to a revision of the plan of informed action, which is also the beginning of the next research cycle (Kemmis & McTaggert, 1988).

4. Design of the study

The present perfect simple and progressive belong to the most challenging grammar issues for students of English (Schwarz, 1988; Yao & Collins, 2012). At the same time its rules of application feature regularly in the *Language in Use* parts of the Austrian standardised tests in school leaving exams and during the school year. Thus, the development of more clarity about what meanings can be expressed by the English present perfect simple and progressive and the ability to correctly select and apply the present perfect in contrast to the present, past and future tenses in form-oriented test formats became the object of learning of my action research study. An additional aim of the project was to produce materials and lesson plans that can be used by teachers of English other than the researcher and will lead to significant learning progress, even if these teachers are unfamiliar with VT.

In preparation for the first research cycle (hereafter RC), the mistakes and questions of students in two upper-secondary English classes, who at a later point participated in the first two RCs, were collected by the researcher. Based on these, conclusions on the students' pre-conceptions and pre-knowledge about the tenses were drawn. A first list of critical features and aspects of the present perfect was created that students need to be aware of, know and understand in order to develop a clearer understanding of what meanings can be expressed with the present perfect. This list was based on:

- the students' various misconceptions about the present perfect,
- insights gained through literature on pedagogical grammars (e.g. Parrott, 2000; Newby, 1990) and contrastive analysis of English and German (e.g. Schwarz, 1988), as English and German are the commonly shared languages in the multilingual classroom in Austria,
- an in-depth study of the rules of application in Standard Written English and what meanings are expressed though the present perfect in standard British and American English and
- a collection of test items of past exam papers in which knowing the rules of application of the present perfect is useful.

Having identified features and aspects of the object of learning, I created patterns of variation based on the principles of VT which were supposed to help students discern all of critical features and aspects. They were implemented in a didactic unit consisting of three regular English lessons of 50' each. First, videos clips were shown to raise the students' interest in the present perfect[5]; secondly, worksheets designed according to the principles were distributed. The students worked through them in preparation for the second and third lesson in which, thirdly, a selection of the patterns from the worksheets were presented on PowerPoint slides and discussed with the whole class in order to answer students' questions and gain more insights into students' perceptions. Sample worksheets and patterns of variation on which discussions were based can be found in the appendix (9.1) of this paper.

The following research instruments were designed to determine the learning progress of the students and to collect multiple evidence for the evaluation of the lesson design and the teaching materials:

- a pre-/post-test, consisting mostly of multiple choice items for the sake of easy evaluation and comparability, which was conducted directly before the first and after the third unit of instruction,
- a delayed and further delayed post-test (conducted about two weeks and five months after the units of instructions; for an extract of the test see appendix 9.2),
- an observation and feedback form for the observing English teacher/critical friend,
- a feedback form for teachers testing my materials in their classes, and
- a feedback questionnaire for students who attended the units of instruction and completed all of the tests,
- a think aloud with follow up questions with 8 students, and
- a research diary kept by me to remember my observations, insights and actions taken.

In the first three cycles, the units of instruction were taught by myself in three upper-level English classes (two groups in year 9 and one in year 10) and observed by critical friends (different teachers of English). The fourth and fifth cycles were taught by two different teachers of English and observed by the researcher (one group in year 9, one in year 10), the last cycle having been conducted at a second school.

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[5] In the video clips extracts of songs, scenes from popular TV shows and a cartoon were shown in which the present perfect is used. (one of the video clips used: https://www.youtube.com/watch?v=Nt7O2w1Fpxc)

At the end of every research cycle the collected data was evaluated and materials and lesson plans were revised accordingly. The most far-reaching changes happened after the first and second cycles, when the list of critical features, the lesson plan, the patterns of variation and the pre-/post-tests were adapted. After the second cycle the worksheet design was also changed (for a sample of a worksheet see appendix 9.1). The lesson plan remained the same for RC 2,3,4, and 5 and the materials were kept unchanged for cycles 3 and 4 in order to make results more comparable. The only change that was made in cycle 5 was that the worksheets were not made obligatory. This was done so as to see whether a discussion of the patterns of variation in class, without the students' previous examination of the patterns with the help of the worksheets, individually and at their own speed at home, would be sufficient. The focus of this paper is on research cycle two because it also included think alouds of individual students and thus provided the broadest range of data.

5. Materials and progression of research cycle 2

In this section, I will discuss examples of critical features and aspects, and give insight into patterns of variations created. In addition, information on the test- and materials-design will be provided and the progression of a RC, using the example of the second RC, will be described.

5.1 Critical aspects and features of the present perfect

In preparation of the first RC, a list of critical features and aspects for the teaching of the present perfect was compiled. Throughout the project, specific critical features are coded by numbers and a colour (e.g. "CF18" for critical feature 18, coded in light green). A brief extract of this list is included in the following table:

Table 1: Extract of the list of critical features

Critical aspect 8: REPETITION UNTIL NOW
CF18: NUMBER OF REPETITIONS UNTIL NOW GIVEN
CF19: IMPLIED REPETITION UNTIL NOW

As Lo (2012) points out, a critical aspect is the superordinate dimension of variation, while the critical feature is a value on this dimension and is subordinate. In this study on the VT-based teaching of the present perfect, REPETITION is an example of a critical aspect and NUMBER OF REPETITIONS UNTIL NOW GIVEN and IMPLIED REPETITION UNTIL NOW are two critical features - CF 18 and 19 respectively. A learner cannot discern critical features without having discerned the critical aspects. To discern a critical aspect, this aspect is varied while others are kept constant. As argued before, discernment then takes place through contrast, as contrast helps learners to discern an aspect and distinguish it from its context.

Some of the critical features teachers will not be able to pinpoint in advance by analysing the object of learning, these will become apparent only while the lesson is taking place (Lo, 2012). This is also the reason why my list of critical features and aspects had to be adapted after each of the first three RCs. Even while acting as a teacher, the researcher was continuously developing a clearer picture of the object of learning through students' questions and mistakes during each of the three cycles. Thus, critical aspects and features needed to be regrouped and new critical features and aspects had to be added.

An example for a critical aspect that had to be added after the second RC was THE IMPORTANCE OF THE RECOGNITION OF TIME-MARKERS AND PAYING ATTENTION TO THEM, because it had become clear that students had difficulties with certain time markers in the tests. The critical features of this new aspect of the object of learning would be TIME MARKERS THAT CALL FOR THE PRESENT PERFECT, TIME MARKERS THAT CALL FOR THE PAST TENSE and PAST-TIME MARKERS MUST NOT BE COMBINED WITH THE PRESENT PERFECT.

The critical aspects of the present perfect simple and progressive identified and taught in the course of the research cycles include

- rules of formation,
- verbal clues like time markers,
- the distinction between state and action verbs,
- the distinction between expressing information explicitly and implicitly (e.g. repetition),
- paying attention to contextual clues (i.e. reading on before deciding on an answer in multiple choice exercises).

Thus, the students' extension of awareness is not limited to simple grammatical rules of formation and application of the tenses but also cover the meaning level and test taking skills, all of which are made comprehensible through patterns that facilitate inductive learning. A complete list of critical aspects and features will be published in my PhD thesis.

5.2 Patterns of variation

A pattern of variation is supposed to make students focus on one critical feature and to help them see its relationship with other critical features and the world. For that purpose, the critical feature is kept constant while the rest is varied, and vice versa. As soon as the individual critical features have been discerned, fusion needs to take place, which means that several critical features are varied at the same time.

The following is an example of a pattern of variation, in which the above-mentioned critical features 18 and 19 are at the centre of attention:

Table 2: Example of a pattern of variation

Present perfect simple or progressive? Focus: "NUMBER OF REPETITIONS UNTIL NOW GIVEN" vs. IMPLIED REPETITION UNTIL NOW	
I have called her three times!	→ focus: NUMBER OF REPETITIONS UNTIL NOW GIVEN
I have been calling her!	→ focus: IMPLIED REPETITION UNTIL NOW
They have travelled to America four times.	→ focus: NUMBER OF REPETITIONS UNTIL NOW GIVEN
They have never travelled to America.	→ focus: NUMBER OF REPETITIONS UNTIL NOW GIVEN
They have been travelling to America. (every year)	→ focus: IMPLIED REPETITION UNTIL NOW

In the above example the difference between the critical feature IMPLIED REPETITION UNTIL NOW and the previously introduced critical feature NUMBER OF REPETITIONS UNTIL NOW GIVEN needs to be discerned. In all of the sentences an action has been repeated (critical aspect). In the first one, NUMBER OF REPETITIONS UNTIL NOW GIVEN, the feature students are already familiar with, applies as *four times* is mentioned, and, thus, the verb *call* is used in the present perfect simple. In the second sentence, however, the same verb is used in the present perfect progressive because repetition is only implied and an exact number is not given. Next a different verb, *travel*, is used in a similar pattern. In the first sentence, an exact number of times is given, as is in the second one, since *never* means "0 times", so the verb is used in the present perfect simple, while in the last sentence it is used in the present perfect progressive, as the repetition is only implied (signalled by *every year* in brackets). Thus, the student is led to noticing that implied repetition until now calls for the present perfect progressive. In the patterns provided, the intention of the speaker is added next to the example sentence as a note and not through typical means of contextualisation, such as a text, to allow students to focus on the single difference between the sentences, the expressed vs. the implied repetition, without being distracted by other content, grammar, words and phrases they might not know etc.

In order to help students focus on a single critical feature and learn to discern it with ease, short, simple sentences were used in contrast to challenging, heavily contextualised ones. As soon as the critical feature has been discerned, example sentences can be made more challenging by mixing the critical features and positioning them in context. This, however, should only happen as a next step, at the point when fusion needs to take place.

5.3. Materials presenting patterns of variation

In this study patterns of variation are presented to students on worksheets and in a PowerPoint presentation. On the worksheets (see appendix 9.1) the students' pre-knowledge about the tenses and strategies they use in the decision-making process are first activated when they have to fill in gapped sentences. These examples are then contrasted with patterns of variation. This procedure helps learners to compare their ways of seeing with the expected way of seeing (based on the rules of Standard British Written English). Finally, fusion takes place when students apply their newly gained knowledge in more complex exercises, in which different critical features are varied simultaneously, which is also the case in the tests (see appendix 9.2), where different tenses and aspects are used as an effect of different critical features within one paragraph.

A PowerPoint presentation was used as a second tool for presenting patterns in my study. It simply displays the gapped sentences from the worksheets as a basis for discussion of the patterns in class. As Lo (2012) points out, teachers must continue assessing how the students understand the learning object while the lesson is taking place and give students useful feedback accordingly. With the help of the slides, the patterns could be discussed with the whole class once more, and students were encouraged to ask questions in order to give room for revision of all the critical aspects which needed to be discerned in the course of the teaching unit. Through the questions it became clear which critical aspects students still had difficulties with after having completed the worksheets and which patterns of variation had to be revised for the next research cycle.

5.4 Tests

Based on the list of critical features and aspects I designed the pre-/post-test and the delayed/further delayed post-test. Both tests had to consist of a story that provides the students with enough context to be able to decide on the right tense and aspect in each of the test items. In addition, all of the critical features had to be tested repeatedly for the sake of more reliable results. At the same time, it should not take students longer than twenty minutes to complete each test. This is the reason why the tests became rather dense and challenging. Table 3 shows an extract from the key of a further delayed post-test.

Table 3: Extract of a key

> And now we turn to one of the most popular actresses and singers in London – Charlotte Birman. She ...(1) in 5 plays and 3 musicals so far and one of her songs, "Don't make me cry" ...(2) in the top 10 of the Charts twice.
>
> (1) a) stars   b) starred   c) has starred   d) had been starring
>
> (2) a) is   b) was *(AmE)*   c) has been   d) has been being

As one can see, the key shows the correct answer in a certain colour. This colour codes the critical feature which is relevant for the choice of the correct tense/aspect in a test item (compare extract of the list of critical features in Table 1). Thus, in the above example 1c) and 2c) are correct answers because of the critical feature 18 (NUMBER OF REPETITIONS UNTIL NOW GIVEN) whose colour code is green.

5.5 Progression of Research Cycle 2

In order to provide an insight into how a typical RC of the VT-based teaching project was conducted, this section outlines the progression of the second RC. The group was an intact class (grade 10) of an Austrian grammar school consisting of 16 pupils aged 15-17.

RC2 started out with the pre-test, followed by an interest-raising exercise. Next students were asked to do all the worksheets at home in preparation for the second part of the research unit. On the worksheets patterns of variation of the previously identified critical aspects and features were illustrated and students had the opportunity to go through them at their own pace. In the following two lessons, the same patterns of variation were revised and discussed in class with the help of a PowerPoint presentation. That way, students who had been motivated to do the worksheets had all the time they needed at home and were encouraged to ask questions about patterns that had not led to a better understanding. Students who had not done the worksheets at least went through the patterns in class and profited from their fellow-students' questions. Through the students' questions the teacher/researcher was able to identify misconceptions of students and could react to them with an explanation and a revision of the patterns and list of critical features for the next RC. Subsequent to the whole-class discussion, the post-test was conducted. Students received the key to the post-test afterwards and were encouraged to revise what they had learned by going over the worksheets and the post-test once more before the delayed post-test which took place about two weeks after the post-test and was included in a "Schularbeit" (a regular exam).

About 5 months after the delayed post-test all of the students took the further delayed post-test. In research cycle 2, 8 of the students were asked to verbalise their decision making process while taking this further delayed post-test. This think aloud with follow-up questions was conducted in a separate room and recorded by the researcher. It provided further interesting insights into how individual students went about taking the test, their knowledge and perceptions of critical features and aspects, and which patterns of variation had to be improved. The remaining 8 students took the further delayed post-test during normal lesson time.

6. Preliminary results

In order to give an initial insight into the effect of the VT-based teaching sessions and the results of the PhD project, this section discusses the learning progress of the group who participated in the second RC. I will compare the group's test results at four different times: the pre-test, immediate post-test, delayed post-test, further delayed post-test.

Graph 1: RC2: pre- vs. post-test results
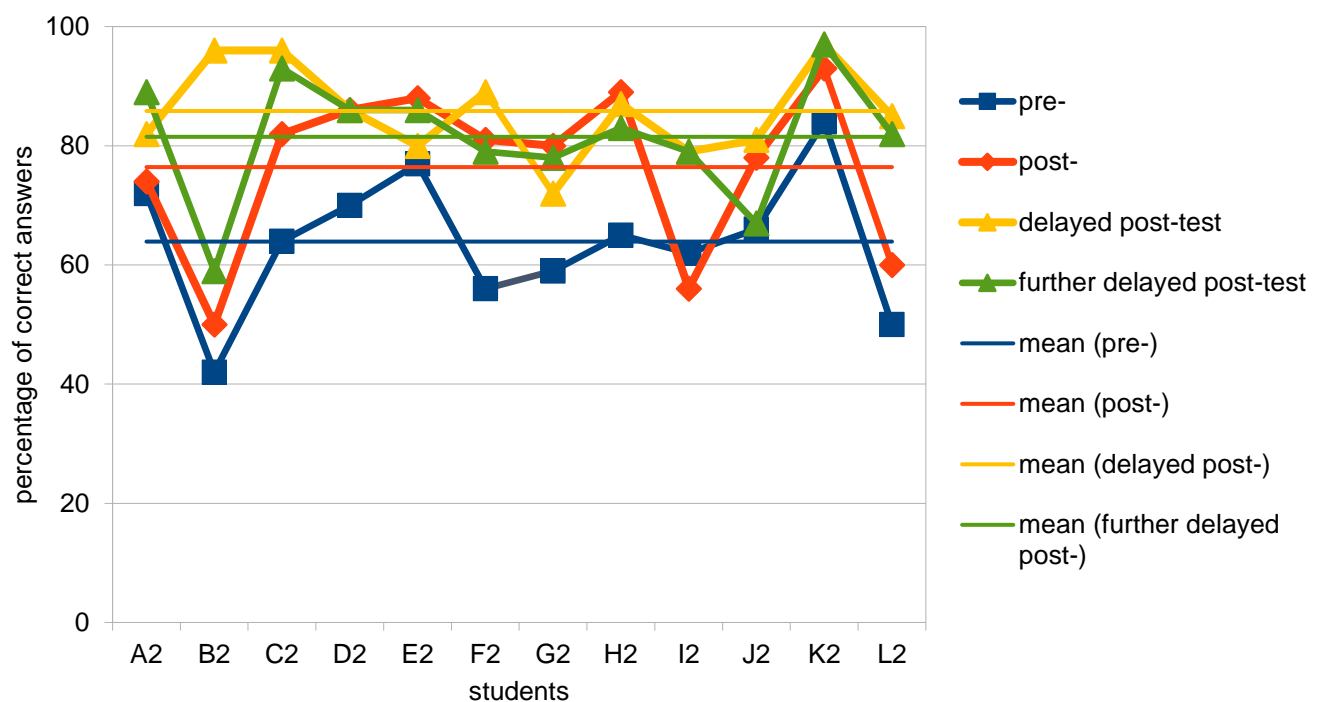
Graph 1 shows the pre- and post-test results of students (A2-L2) who took part in RC2. Thick lines connect the actual test results (percentage of correct answers) of individual students, thin lines represent the group average per test round. The horizontal lines representing the means show that, on average, the students only answered 63,9 % (mean pre-test, blue) of the items in the pre-test correctly, whereas they succeeded in answering 76,4% (mean post-test, red) of the items in the post-test correctly. This increase of 12,5% demonstrates that through the research unit considerable learning progress was achieved.

Of particular interest from a pedagogical perspective is, of course, the question whether the VT teaching project had a long-term learning effect. For this we turn to the results of the delayed post-test (yellow) which took place about two weeks after the post-test and, subsequently, the further delayed post-test results (green), which took place five months later.

Graph 1 shows that the group in RC2 on average achieved even better results in the delayed post-test (yellow, mean 85,8%) than in the post-test (red, mean 76,4%). This was arguably due to the fact that the delayed post-test was included in a regular test, which they had studied for. Students reported that they had only used the worksheets based on VT to revised and prepare for the test.

The further-delayed post-test took place about 5 months after the delayed post-test. On average, the further-delayed post-test results (green, mean 81,5%) are still better than post-test results (red, mean 76,4%), only slightly worse than the delayed post-test results (yellow, mean 85,8%) and much better than the pre-test results (blue, mean: 63,9%), suggesting that VT-based teaching had led to long-term learning for the group participating in RC 2.

In the course of the further-delayed post-test think alouds with follow-up questions were conducted with eight participants of RC2. The think alouds and students' answers to the questions made apparent that most of the students remembered the majority of the critical features of the present perfect correctly half a year after the research lesson, without having had any explicit input on tenses and aspects in their English lessons in the meantime. It was also confirmed that, while taking the further delayed post-test, these students usually indeed based their decisions on what they had learned about critical features during the research lessons. The interviewees' comments also provided interesting information on which features they were still struggling with, which in turn was used to improve the teaching materials for RC3.

In addition to the think alouds/interviews, lessons were observed by a critical friend in order to record questions asked and the students' reactions to explanations during the research lessons. Moreover, the participants' feedback was collected through questionnaires which students filled in right after the post-test. An evaluation of results from these research instruments showed that the students' reactions were mostly positive with regard to the research lessons, the materials and explanations provided. Test results, think alouds, questions asked during the research lessons and feedback from teachers and students helped to make improvements on the list of critical features and aspects, corresponding patterns of variation, and the structure of the worksheets, in preparation for RC3. A more detailed analysis of the think aloud results, the feedback forms and the observations made by the critical friend would be beyond the scope of this article but will be published in my PhD thesis.

7. Conclusion and outlook

In this paper I have briefly summarised what Variation Theory is, how it can be implemented and how its applicability as a tool for teaching linguistic form in the English language classroom can be tested. The results of the study show that with specifically designed materials based on VT students were able to develop a much deeper understanding of which meanings can be expressed through the present perfect in contrast to other tenses and aspects. This also becomes apparent in the think alouds and follow-up interviews conducted in the course of the delayed post-test. In addition, students had mostly retained their knowledge about the conceptualisation of the present perfect five months after the units of instructions, which suggests that long-term learning had taken place. Later research cycles have shown that the materials and lesson plan can be used by teachers of English who are unfamiliar with VT and a first evaluation of the data collected suggests that similar results were achieved in their classes.

The teaching units, covering about 150 minutes of class time plus the worksheets which had to be completed outside the classroom, only cover a brief presentation and part of the practice phase necessary to teach the present perfect and prepare students for the standardised school leaving exam. The research units were strictly based on the principles of Variation Theory, focusing on patterns of variation that lead to cognitive discernment of which meanings can be expressed by the present perfect simple and progressive and which critical aspects are necessary to understand them in order to make a conscious, educated decision on which tenses and aspects need to be applied to express a certain meaning. Arguably, to be cognitively aware of how the present perfect is used can be advantageous when completing the *Language in Use* test part of the Matura and proofreading texts. Thus, the research units can be seen as part of the test preparation for the standardised tests.

Of course the materials and the way VT was applied in in my study can only be a small part of what needs to be done to successfully teach students the English language, particularly as my materials can only be applied in the introduction and practice stage of the teaching process, and do not focus on production. Tenses and aspects should be introduced in combination with more communicative exercises (e.g. Newby, 1990; Newby, 2008) beforehand and/or practised with communicative tasks subsequently. Participants in my study experienced lessons based on communicative teaching before and after the research units. VT theory was only used to clarify what had been unclear until the research unit took place and as a tool to refine and widen students' knowledge about the tenses at that point.

Even though the ability to produce meaningful and correct language is the final aim of teaching a language, a verification of whether awareness-raising leads to an improvement in spontaneous production would have been beyond the scope of this study. However, texts produced by the participants following the research lessons would suggest that the students' ability to produce correct language was indeed enhanced as students made use of the present perfect correctly in most instances after the research unit, whereas they had hardly ever managed to do so in texts handed in beforehand.

Obviously, the study implicates difficulties and limitations typical for Action Research in education (Dörnyei, 2007). For instance, the active involvement of the researcher as a teacher might threaten validity. In addition, factors, such as the social constellation of the group participating in a RC, the time lessons and tests took place, the pressure students were under, through, for example, exams being scheduled on the same day as the units of instructions/tests that were part of the study, could not be controlled and thus limit comparability. Unfortunately, conditions are never ideal in educational research taking place during regular school lessons and the best must be made out of a non-ideal situation.

A design feature of the present study which I have not been able to dwell on in this article is the existence of a control group. In order to render results more valid, all tests were given to a comparable intact class at the same school which did not receive any input based on VT between the pre-test and the further delayed post-test. The class experienced the regular communicative language lessons and some form-focused instruction on the tenses, which consisted of a presentation and practise phase which were not based on the principles of VT. The results show that the control group achieved much less learning progress than any of the groups who had received VT based instruction on the tenses similar to RC2.

What the present contribution demonstrates is that all the test results obtained so far strongly suggest that VT and the materials produced are an effective tool for teaching the present perfect to upper secondary students in preparation for standardised tests. Once published, the materials produced in the course of the study will be available for distribution and can be used

to revise and help upper-level students (e.g. levels B1/B2/C1) connect critical aspects of the present perfect to develop a clearer picture of it the way it was done in the RCs. Additionally, parts of the materials can be used to introduce individual aspects of the present perfect in combination with other, more communicative, teaching approaches.

8. Practical relevance

VT has been influencing my teaching ever since I became aware of how exactly to apply it as a pedagogical tool. Focusing on one aspect after another and using variation, sameness and simultaneity systematically in self-designed patterns of variation have become an integral part of my lessons ever since. Whenever I introduce a new concept or pick up on students' misconceptions and revise rules which have already been introduced and practised, I apply the principles of VT and in most instances I even manage to come up with a pattern of variation spontaneously because the underlying principles are very simple once understood.

Example 1: based on the principles of VT, the difference in usage of adjectives and adverbs would be pointed out through sentences (1ab) rather than (2ab), because in the first two examples only one feature is varied while the rest is kept constant, whereas in the second sentence pair more than one feature is varied.

(1a) She sings beautifully.
(1b) She is beautiful.
(2a) She sings beautifully.
(2b) He is nice.

It is more difficult to discern what is relevant for the decision between adverb and adjective in the second pair (2ab), where not only the decisive feature, the verb, is varied, but also the pronoun and the words used as an adjective or adverb – something which is often true in example sentences printed in textbooks. Apart from helping my pupils learn how to use the present perfect tense in tests, Variation Theory has been very important to me as a pedagogical tool in many teaching situations, whether they have been prepared beforehand or come up spontaneously during a lesson. The two simple examples below provides insights how VT can easily be used by language teachers to enhance learning.

Example 2: When I introduced and at a later point revised the "going to" future as a new tense after the present simple and progressive in my 1st form (year 5, age 10), I used Variation Theory by the following pattern of variation:

I **go** to the game **every day.**	I **play** the game **every day.**	He **plays** the game **every day.** (or: He often/sometimes/ usually/always plays the game.)	present simple
I **am going** to the game **now**.	I **am playing** the game **now**. (or: at the moment)	He **is playing** the game **now**.	present progressive

I **am going to go** to the game **tomorrow**.	I **am going to pla**y the game **tomorrow**.	He **is going to play** the game **tomorrow**. (or: <u>at the weekend, next month...</u>)	future

As one can see, only one feature is varied while the rest is kept the same. Thus, students are able to focus on and discern what is considered a critical aspect of the object of learning with ease.

This very systematic form of presentation leads to an expansion of awareness. It is learner-centred and can be applied for any aspect which is considered critical as soon as a student has comprehension difficulties or misconceptions about what needs to be understood during lessons. Having understood the principles of VT, the teacher has a powerful tool for helping students arrive at a clearer understanding of cognitively comprehensible issues.

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9. Appendix

9.1. Sample worksheet including patterns of variation

> 2nd clue for the PRESENT PERFECT **SIMPLE** :
>
> **HOW OFTEN until now?** **NUMBER OF TIMES UNTIL NOW GIVEN**
>
> (TIME MARKER that CONNECTS the PRESENT and the PAST or NO TIME MARKER)

First fill in what you think is correct! (past/present perfect/past perfect)

I …............................to England 3 times since I was born. (be)

I …............................to England 3 times. (be)

I …............................to England. (never, be)

In August I …................to England. (go)

In August I …..................to England 3 times. (go)

I …............................computer games with Peter many times. (play)

I................................computer games with Peter many times before he moved to England. (play)

I................................computer games with Peter many times when we were children. (play)

Now try to understand the difference!

I <u>have been</u> to England **3 times since I was born.**	→ **NUMBER OF TIMES UNTIL NOW GIVEN: 3 times since I was born**
I <u>have been</u> to England **3 times**.	→ **NUMBER OF TIMES UNTIL NOW GIVEN: 3 times**
I <u>have</u> **never** <u>been</u> to England.	→ **NUMBER OF TIMES UNTIL NOW GIVEN: never (0 times)**

In August I went to England.	→ *past event + past time marker: in August*
In August I went to England 3 times.	→ 3 times + *past time marker: in August* (How often <u>in the past</u>? N*ot*: until now.

I <u>have played </u>computer games with Peter **many times**.	→ **NUMBER OF TIMES UNTIL NOW GIVEN:** many times
I <u>had</u> <u>played</u> computer games with Peter many times **before he moved to England.**	→ *number of times <u>until a point in time in the past;</u> point in the past = he moved to England; "many times" = number of times* **until** <u>*then*</u>
I played computer games with Peter many times <u>when we were children</u>.	→ *number of times + past time marker: "when we were children"*

2ⁿᵈ clue: NUMBER OF TIMES UNTIL NOW GIVEN

(once/twice... two times/three times... never) → present perfect simple

Number of times + PAST TIME MARKER→ past simple

Number of times until a POINT IN TIME IN THE PAST → past perfect

Don't combine a past time marker with the present perfect!

Now apply what you have learned!

<u>Highlight</u> the clues and fill in the right form of the verbs in brackets!

Then check your answers with the key on the next page! Correct your mistakes with a <u>different</u> colour!

Look for clues!
HOW   OFTEN
until now?

I …..........................…...............(never watch) *Interstellar*.

I …..(watch) *Interstellar* once.

I …..(watch) *Interstellar* three times.

I …..(watch) *Interstellar* three times together with my friends before I watched it on my own.

Yesterday I …......................................(watch) *Interstellar*.

They …................................(complain) about the noise 4 times last month.

They …............................... (complain) about the noise 4 times.

They …................................(complain) about the noise 4 times before they called the police.

Now compare with the key below!

Check your answers! Correct your mistakes with a different colour!

I **have** <u>**never**</u> **watched** *Interstellar*. (How often until now? Never.)

I **have watched** *Interstellar* <u>once</u>. (How often until now? Once.)

I **have watched** *Interstellar* <u>three times</u>. (How often until now? Three times.)

I ***had*** **watched** Interstellar <u>three times</u> together with my friends <u>before I watched it on my own.</u> (before a past event, until then → past perfect)

<u>Yesterday</u> I **watched** *Interstellar*. (past time marker)

They **complained** about the noise 4 times <u>last month</u>. (past time marker)

They **have complained** about the noise 4 times**.** (How often until now? 4 times.)

They ***had*** **complained** about the noise 4 times <u>before they called the police.</u> (before a past event, until then → past perfect)

9.2. Extract of a test

"And now we turn to one of the most popular actresses and singers in London – Charlotte Birman. She **….(1)** in 5 plays and 3 musicals so far and one of her songs, "Don't make me cry" **….(2)** in the top 10 of the Charts twice. Nowadays, she **….(3)** to a group of the best-known artists in London.

    (1) a) stars   b) starred   c) has starred   d) had been starring

    (2) a) is   b) was   c) has been   d) has been being

    (3) a) belongs   b) belonged c) has belonged   d) has been belonging

Charlotte **….(4)** born in London in 1980. She **….(5)** interested in acting when she started primary school. There she **….(6)** the chance to take part in a school play and she enjoyed it so much that her parents agreed to send her to acting classes. This was also when she **….(7)** her talent in singing. She **….(8)** singing lessons for 15 years now and she **….(9)** over the past few years.

    (4) a) is   b) was   c) has been   d) had been

    (5) a) becomes b) became   c) has become   d) had become

    (6) a) gets   b) got   c) has got   d) had got

    (7) a) discovers b) discovered   c) has discovered d) had discovered

    (8) a) takes   b) took   c) has taken   d) has been taking

    (9) a) improves b) improved   c) has improved   d) has been improving