Co-planning With Novice Teachers of English as a Tool for Developing Reflective Skills

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Abstract

This study explored the reflective capability of nine Hungarian teachers of English with differing levels of experience to uncover how beginner teachers can be helped to reflect more effectively. Reflective capability was explored by examining eight cognitive and metacognitive skills teachers used in their anticipatory and retrospective reflections. The beginner teachers' reflections were initially simpler and more descriptive than the experienced teachers'. However, during the study they started to reflect in more complex, analytical ways, a development they attributed to co-planning lessons with an experienced practitioner. One main conclusion was that beginner teachers from traditional learning contexts such as in Hungary, may need very structured assistance in developing the strategic thinking skills underpinning reflection before effective reflection can occur. Co-planning was suggested as a framework within which such assistance could be provided.

Key words: initial teacher education; co-planning; anticipatory reflection; cognitive skill acquisition; Hungary

Introduction

During the last 30 years, reflective practice and learning to teach by critically examining one's practice, has received much support in teacher education (Harrison et al., 2005). However, I have always found reflection a problematic skill to foster with the student teachers I work with in Hungary who describe rather than analyse practice, experience difficulties with problem solving, evaluating themselves and their pupils and interpreting phenomena accurately. My desire to understand why these difficulties occur and how beginner teachers can be assisted, triggered the case study research described in this article.

The literature distinguishes between three reflective time frames: 'Anticipatory reflection' (Van Manen, 1991, p. 101) and reflection oriented to future experiences; 'Reflection-in-action' (Schön, 1987, p. 26), reflection during the event; 'reflection-on-action' (ibid) or retrospective reflection, after the event. Although professional education should foster all three types for practical reasoning skills to fully develop (Greenwood, 1993), a bias currently exists in educational research towards reflection-on-action (Conwey, 2001) with anticipatory reflection particularly under-researched (Marcos & Tillema, 2006). This article focuses on anticipatory reflection in an attempt to readdress this imbalance. My contention is that if we attend to anticipatory reflection by co-planning lessons with teachers, then general reflective capability can be enhanced.

The study was set in a Hungarian college of primary teacher education. In Hungary, mainstream education is still rather traditional and teacher-centred. Teaching tends to be from the textbook, learners still tend to work alone and are tested frequently through methods that emphasise memorisation and reproduction of facts (Kárpáti, 2009). This traditional classroom culture influences teacher education at my institution in several ways. The predominant teacher training approach is 'technical rationality' (Schön, 1983, p. 22) where student teachers learn given theory in lectures, then attempt to apply it in their practice. Teaching practice (TP) provision is low, trainees are mentored through a judgemental rather than developmental mode and trainees receive marks for all teaching activities such as TP journal writing, lesson plans, teaching performances, post-lesson reflections. It is important to obtain good marks in Hungarian education and pupils are constantly assessed on all their work, their motivation and diligence. Indeed, in Higher Education students with good marks can receive grants 30% higher than those with lower marks.

1. Reflection as a Complex Cognitive Skill

Reflection as conceptualised in this study, combines two separate research traditions of reflective practice and skill psychology. The 'Reflective' literature provides insight into the nature and substance of reflection but neglects slightly issues concerning acquisition. There is for instance, a lack of research-based evidence on what helps individuals learn to reflect (Korthagen & Wubbels, 1995; Mackintosh, 1998), or links that exist between reflection and learning (Moon, 2000) and few studies operationalize reflection to describe what teachers actually do when they reflect (Ixer, 1999; Hargreaves, 2004). One area of skill psychology concerns the acquisition of cognitive skills such as problem solving, so can provide insight into the role of cognition in reflective thinking.

1.1 'Reflective' Literature

Reflection is characterised in the literature in diverse ways through different concepts and terminology so it is important to conceptualize one definition specific enough for consistent application. Schön (1983) characterises reflection as an internally-oriented, elaborate problem solving activity. By repeatedly considering problems, planning, attempting, then evaluating various solutions in increasing depth, we modify our actions and the reasoning underpinning them which results in knowledge growth (Schön, 1983). Some perceive reflection in this sense as just one aspect of metacognition (Eraut, 1994; McAlpine et al., 1999) given that both reflective and metacognitive skills involve a high level of self-awareness and control of our thinking and that as Clegg (2004) maintains, the act of reflecting combines cognitive (e.g. recalling) with metacognitive processing (e.g. planning for change).

Some emphasise the collaborative nature of reflection arguing that if we reflect with someone, we may be forced to confront issues we might otherwise ignore (Day, 1993). Others highlight its context-embedded nature, that how and what we reflect on is influenced by our local contexts (e.g. schools, pupils) and our socio-political contexts and the value system within which society operates (Zeichner & Liston, 1996). Some perceive reflection as operating at different levels and various frameworks characterise levels of increasing sophistication with progression through the levels linked to teaching experience (Van Manen, 1977; Collier, 1999). The temporal dimension is also important as the time when we reflect influences how we reflect (Giffiths & Tann, 1992). For example with reflection-in-action, reflection may be superficial because the time available during the event is too short for the thoughtful analysis of reflection-on-action (Korthagen & Kessels, 1999).

Loughran (1996, p. 20) defines anticipatory reflection as 'framing a problem before it occurs' thus drawing on the Schönian notion of reflection as elaborate problem solving. For Schön, it is the analysis involved in framing problems or 'Problem setting' (Schön, 1983, p. 40) as much as solving them that stimulates knowledge growth. Problem setting refers to how we define the problematic situations we meet to make them more manageable, by deciding on 'the decision to be made, the ends to be achieved, the means which may be chosen' (ibid). Schön (1983, p. 40) writes:

> When we set the problem, we select what we will treat as the 'things' of the situation, we set the boundaries of our attention to it and we impose upon it a coherence which allows us to say what is wrong and in what directions the situation needs to be changed. Problem setting is a process in which, interactively we name the things to which we will attend and frame the context in which we will attend to them.

In this sense then, learning results from recognising and defining problems.

Anticipatory reflection is triggered through the activity of planning (Clark & Yinger, 1987), so by planning lessons with teachers, I gained insight into the nature of their anticipatory reflection.

1.2 'Skill' Literature

Tomlinson (1996) defines an open, complex, cognitive skill as when we achieve a goal by interpreting the context and deploying appropriate strategies to accomplish our purpose. It is open as it occurs in unpredictable settings, complex as it encompasses many subskills and combines a high level of metacognitive with cognitive processing (Lim et al., 2009). Reflective thinking, which involves analysing and responding to unpredictable teaching phenomena using various cognitive and metacognitive skills, can therefore be considered an open, complex, cognitive skill.

In both the 'Reflective' and 'Skill' literature, learning is grounded in problem solving (Schön, 1983; VanLehn, 1996) so by examining the constituents of problem solving and how it is acquired, we can understand the difficulties beginners experience with reflection and the assistance they require.

1.2.1 Problem solving

One important feature in the problem solving literature is the distinction between well-defined and ill-defined problems. In well-defined problems the situation is predictable, the problem's context and contents are established and recognisable (Mayer, 1996). Ill-defined problems are unpredictable, the context and contents unfamiliar. If an experienced teacher plans a new lesson, from familiar materials for her regular class, she faces a well-defined problem situation but a teacher planning with unfamiliar materials and pupils, in a new school faces an ill-defined one.

For Mayer (1996), central to solving well-defined problems is the notion of problem space which consists of: the 'given state' and the problem's starting point, its context and characteristics (Mayer, 1996, p. 550); the 'goal state' (ibid) and the desired outcome; the set of 'operators' (ibid) that connect the given to the goal state; 'obstacles' (Davidson & Sternberg, 1998, p. 488) or phenomena that constrain movement through the problem space. Mayer also highlights four key problem solving processes we use when solving problems. These are: 'representing' (Mayer, 1996, p. 551), when we mentally represent the problem to ourselves by identifying the given and goal states, operators, obstacles and how these interrelate; 'planning' or calculating how to best achieve a solution; 'executing', carrying out the plan; 'controlling', evaluating our progress towards the goal. Of these, 'representing' is most critical to effective problem solving (Davidson & Sternberg, 1998).

With ill-defined problems, the given state, goals, operators and obstacles are not fully specified and this makes the solving of such problems far more challenging. To fully understand and so solve ill-defined problems effectively, practitioners must first transform ill-defined into well-defined ones by defining these problem space components (Glaser, 1999). This is something the beginner teachers in my own study found extremely hard to do.

1.2.2 Acquiring problem solving capability

We learn complex skills such as problem solving by breaking them down into their sub-skills which are then learnt through 'repetition with successive refinement' (Ericsson & Lehmann, 1996, p. 278) before being reintegrated into the whole. Critical in this process is the notion of informed feedback when performance is, 'carefully monitored to provide cues for ways to improve it further' (Ericsson et al., 1993, p. 368) by either a more expert practitioner or through thoughtful self-analysis (Dunn & Shriner, 1999). Individuals must know precisely what aspects of the skill to develop, how to develop them and have repeated opportunities to improve, for development to occur.

When acquiring skills, learners appear to move through qualitatively different stages of development. Skilled performance is generally portrayed as accurate, fluent, intuitive, analytical and principled in contrast to the error-prone, fragmented, deliberate, superficial actions of the novice (Anderson, 1982; Alexander, 2003). In skill psychology, differences between novice and expert performance are explained in terms of differences between the knowledge that practitioners possess about the skill`s domain and how they organise that knowledge (Ericsson & Lehmann, 1996). Knowledge is organised in schemata, the abstract, knowledge structures in long-term memory. With experience, schemata become increasingly sophisticated and interlinked as experts structure and organise the knowledge they have acquired, in ways that assist proficient performance (Glaser, 1999). For instance, experts organise new knowledge under its core principles (e.g. its theoretical concepts, its critical features) so can retrieve it for use in problem analysis in principled ways, leading to in-depth understanding (Ericsson & Lehmann, 1996; Chi et al., 1981). Novices have not yet developed the sophisticated knowledge system to facilitate such principled storage and retrieval, so understanding is superficial leading to poorer performance.

1.3 Fostering reflective thinking: Cognitive Apprenticeship

One model of learning that encompasses the collaborative, context-based, developmental features from the 'Reflective` literature with the focus on cognition from the `Skill` literature, is `Cognitive apprenticeship` (Collins et al., 1987). Cognitive apprenticeship guides learners from assisted to unassisted performance by making visible the social and cognitive processes that experts use to manage complex tasks.

This is accomplished through interaction between experts and novices in the setting in which the skill is embedded. Learners acquire the necessary skills by first observing models of what to do, then practising these skills, coached and scaffolded by the expert. Later, by articulating about and reflecting on performance, learners process the knowledge they have encountered which is eventually generalised to fresh contexts.

Articulation emerged as significant in my study and so warrants particular attention. It is well-documented that articulation enhances learning as it helps individuals access and clarify thinking. Different researchers though emphasize different aspects. Ericsson and Simon (1980) emphasise the type of talk. Talk such as analysing, inferring, predicting uses information from long-term memory and is more demanding than talk such as describing one's actions which uses information instantly available from working memory. Analysing is therefore more likely to invoke cognitive change than describing. Berry and Broadbent (1984) emphasise the time of talk. If participants first receive input on a problem solving task (e.g. background information, potential problems plus solutions) and then articulate their reasoning during task completion, learning is more likely to occur than if individuals receive input and articulate post-task. Input plus on-task articulation is optimal because individuals have access to input at a time when it can be most effectively linked to action. It is thus more memorable. Also, input plus on-task articulation fosters the principled reasoning underpinning effective problem solving which enhances performance. Berardi-Coletta et al. (1995) emphasise that requests for articulation on-task foster metacognitive processing to the benefit of current and subsequent performance. If individuals are asked for reasons through 'Why' questions, this shifts their attention away from the problem onto how they themselves solved it which serves to foster the self-awareness key to metacognitive development.

1.4 Research questions

Research traditions of reflection and skill psychology combined to frame the research questions this study sought to answer. Reflective capability was explored by examining eight cognitive/metacognitive skills teachers used in their anticipatory and retrospective reflections. The questions were:

1. Do differences exist in reflective capability between nine Hungarian EYL teachers (English to Young Learners) with differing levels of teaching experience? If so, what are the differences, why might they occur?
2. What implications do any findings have on Hungarian teacher education?

2. Design

2.1 Participants

The study was conducted in English, with nine Hungarian primary teachers for the 6-12 year old age range. They were divided into three groups.

Group A: Beginner teachers. Two participants were final year students on a full-time, four-year, BEd programme, which qualifies teachers of Hungarian subjects plus English as a foreign language. The third was a recent BEd graduate. Their English and Hungarian teaching experience ranged from 3–20 hours. They were intermediate English language speakers.

Group B: Accomplished Beginners. These teachers were on a part-time, two-year, in-service course for qualified teachers of Hungarian subjects retraining as English teachers. They were accomplished teachers of Hungarian but beginner English teachers. Their English teaching experience ranged from 10–20 hours, and Hungarian from 12–23 years. They were intermediate English speakers.

Group C: Experienced teachers. These teachers were qualified teachers of English and Hungarian with between 15–35 years teaching experience. They were advanced speakers of English.

2.2 Data Collection

Observations, semi-structured interviews and diaries were used for data collection.

Table 1: Data collection procedures

Step	Data source per participant	Procedure
1	Observation 1	Lesson observed, field notes taken.
	Post-lesson Interview 1 in participant's school	Participant and I discussed the lesson immediately afterwards. Interviews were recorded and transcribed verbatim.
	Diary 1	Participant reflected on lesson.
2	Planning Interview in participant's school	Participant and I co-planned Observation 2's lesson, one to three days before Observation 2, four to eight weeks after Observation 1.
	Diary 2	Participant reflected on co-planning experience.
3	Observation 2	See Step 1.
	Post-lesson Interview 2	
	Diary 3	
4	Diary 4	Participant reflected on research experience.

Post-lesson interviews lasted between 45 – 90 minutes and unfolded in similar ways. They fell into two sections: (a) "Talking about the lesson" when teachers reflected on lesson events; (b) "Talking about teaching", when we discussed teaching-related issues such as participants' own teacher learning. Planning interviews were far more complex and unpredictable and lasted between 45–120 minutes. I could not anticipate beforehand their structure, contents or my own role which varied greatly, from instructor to advisor to collaborator depending on the type of assistance participants required.

2.3 Data Analysis

2.3.1 Qualitative analysis

Post-lesson and pre-lesson data was different in nature and so analyzed separately. Following grounded theory procedures (Rubin & Rubin, 1995), I coded data from one beginner, one accomplished beginner, one experienced teacher by identifying concepts and placing these into thematic categories that related to the research questions. Then, I interpreted those categories to address my research questions. Throughout the analytical process, I cross-checked data sources, refining the categories accordingly. My own interpretations were checked by four colleagues and eventually two coding systems were agreed upon, one for post, one for pre-lesson data.

2.3.1.1 Post-lesson data
Five categories emerged to accommodate reoccurring concepts.
1. Reflection: different types of reflection, teachers' perceptions of and problems with reflection.
2. Context: information referring to contextual influences on teachers' thoughts and actions.
3. Planning: problems with planning, planning strategies and procedures, usefulness of co-planning.
4. Teacher Learning: teachers' perceptions of their own teacher learning.
5. Cognitive skills: six skills teachers used to reflect on teaching experience (see Appendix 1)

2.3.1.2 Pre-lesson data

Two major categories captured participants' anticipatory reflective behaviour.
1. Problem Setting
Problem Setting refers to how practitioners define problematic situations (Schön, 1983) by identifying the problem's start points, end points and the connecting steps, plus any constraints to this process (akin to Mayer's 'representing', 1996, p. 551). Problem Setting was explored from two interrelated aspects.

   i) *Deliberate approach* characterises how participants analyzed their contexts when creating a representation of their planning problem. It was included to see whether experts do indeed invest more time and effort representing a problem, considering a wider range of contextual factors and possible constraints on progress than novices who proceed quickly on to searching for rather superficial solutions (Voss et al., 1983; Swanson et al., 1990).

    ii) *Framing* characterises how participants identified which salient features to attend to in their planning contexts (e.g. the start points, goals, steps and constraints).

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This describes the processes teachers used to make sense of their situations.

    i) *Drawing inferences* explores how participants understood the significance of what they perceived. It accommodates activities such as analysing tasks to select and structure content, predicting possible problems. It was included to see if experts can indeed infer and predict more effectively than novices (Borko & Livingston, 1989).

    ii) *Principled approach* examines how participants analysed their situations. It accommodates activities such as identifying: reasons for one's actions, a task's aims, a problem's cause, a concept's principles. It was included to see whether experts do indeed approach problematic situations in more principled ways than novices (Chi et al., 1981).

2.3.2 Quantitative analysis

This second analytic strategy relates to retrospective reflection only so is just summarised here (for further details, see author, 2011). First, through qualitative analysis, I identified six cognitive skills participants used to reflect on their teaching in interview section a) 'Talking about the lesson'. These skills were the single descriptive skill of Describing and five analytical skills: Pedagogic Reasoning (divided into Simple, Intermediate, Critical reasoning levels); Commenting (divided into giving Opinions and Elaborating on statements); Evaluating; Predicting; Problem Solving. Category System in Appendix 1 contains definitions of these skills and I used this category system to analyse participants' skill use in post-lesson reflections.

This extract illustrates the skill use of one experienced teacher (Csilla) when discussing her first two lesson activities, post-lesson Interview 1.

> *...at the beginning we started with* **general questions** **(Activity 1)** (Describing task) *and after the weekend it's quite good and it's quite difficult for them to acclimatize and it helps to start English* (Commenting: Opinion)*...then came* **the hangman game** **(Activity 2)**, *the letters on the board game* (Describing task) *and although we do it quite often, I don't...didn`t mind it* (Commenting: Opinion), *because spelling is quite difficult sometimes for them* (Pedagogic Reasoning: Simple) *and even in this year 5 they mix up "I"..."E" and these kinds of letters and how to pronounce it* (Commenting: Elaborating).

I then tallied how often each participant used each skill in their lesson reflections and converted the resulting numbers into percentages to gain insight into the focus of their thinking when reflecting. Table 2: Sample Tally, records Csilla's skill use in post-lesson Interview 1.

Table 2: Sample Tally

	Descriptive	**Analytical**					**Evaluating**	**Predicting**
No. of occasions	**Describing**	**Pedagogic Reasoning**			**Commenting**		**Evaluating**	**Predicting**
49	**10**	**Simple**	**Interm.**	**Crit.**	**Opin.**	**Elaborate**	**12**	**2**
		6	**4**		**8**	**7**		
100%	20.4%	20.4%			30.6%		24.5%	4.1%

When Csilla reflected on lesson events in post-lesson Interview 1, she used the five skills represented in Table 2 on 49 occasions (see '49' in 'No. of occasions'). Describing was used ten times; Pedagogic Reasoning, ten times (six at Simple, four at Intermediate level); Evaluating twelve times and so on. Percentages were obtained by dividing the number in a skill category by the total number of occasions skills were used, then multiplying by 100. Thus for 'Evaluating', $12 \div 49 \times 100 = 24.5\%$.

These percentages represent how often Csilla used each skill as a proportion of her total skill use when reflecting-on-action and suggest the focus of her thinking. 20.4% for Describing implies that when reflecting on lesson events, 20.4% of Csilla's contributions described lesson phenomena and the remaining 79.6% reasoned about, commented on, evaluated or predicted them.

Problem solving underpinned the other analytical skills so could not be similarly isolated. For example, teachers often evaluated tasks by identifying and analysing the problems that occurred in task completion, in which case I classed the thinking as Evaluating, the main purpose of the interaction. I could not therefore calculate the frequency of Problem Solving but examined it qualitatively and explored how participants worked through Mayer's (1996) four problem solving processes (as defined in Category System, Appendix 1) when performing a skill such as Evaluating.

In conclusion, through qualitative and quantitative data analysis, I identified and explored eight subskills of reflective thinking. These were: Problem Setting, Interpreting, Describing, Pedagogic Reasoning, Commenting, Evaluating, Predicting, Problem Solving. My analysis of how participants used these skills in their lesson reflections produced the findings below.

3. Findings

Three main findings emerged to answer the two research questions posed earlier. It is Finding 3 that concerns anticipatory reflection so Findings 1 and 2 are just summarised to contextualise Finding 3 (for further details, see author, 2011).

3.1 Finding 1: Beginner and accomplished beginner teachers reflected in ways similar to each other but differently from experienced teachers

All participants perceived both anticipatory and retrospective reflection as forms of elaborate problem solving as indicated by the way they described reflection through problem solving terminology. Comments on planning included, *If it is something totally new it takes more time to solve it when I look at the material* (Experienced teacher), and post-lesson discussions, *it was useful to talk to solve the problem* (Beginner). Significantly, participants characterised pre and post-lesson discussions in ways akin to ill-defined and well-defined problem solving. Planning (ill-defined problem solving) was perceived as complicated, as analysing contexts that were not yet fixed and involving uncertainty. Post-lesson discussions (well-defined problem solving) involved describing and analysing known phenomenon. Solving ill-defined is harder than solving well-defined problems and the beginner/accomplished beginner teachers struggled far more analysing teaching before rather than after the lesson, that is with anticipatory rather than retrospective reflection.

3.1.1 Anticipatory reflection: Problem Setting

The experienced teachers were purposeful, principled thinkers. They behaved as expert problem solvers and invested much time reflecting on their planning contexts to create reliable representations of the problem and transform their ill-defined planning situations into more solvable well-defined ones. They routinely considered a range of contextual features such as their school's expectations, curricular, possible problems and framed their contexts by organising their problem space components. They first identified and worked backwards from their goals to their starting points, then connected up the two by selecting and organising fun tasks that would most engage their pupils. While they appeared to plan around fun activities, they actually planned by intuitively identifying and sequencing the activities' learning aims and this made their lessons purposeful.

The beginner/accomplished beginners were superficial planners. They were far less deliberate and skipped completely the stage of reflecting on their contexts but immediately started planning specific activities. Indeed they seemed overwhelmed by the information facing them and were unable to identify features critical to effective 'representing' (Mayer, 1996, p. 551) such as their goals or obstacles such as potential problems. Consequently, they failed to frame their planning situations but just selected activities that they liked, that would engage their pupils, then sequenced the activities thematically. Lessons were fun but directionless because it was unclear what the aims of the activities actually were and how they contributed towards a learning goal.

3.1.2 Retrospective reflection: Problem Solving

The experienced teachers were principled, effective problem solvers when reflecting on problematic episodes and consistently worked through all four problem solving processes of: identifying the problem, its cause, a solution, evaluating the episode. The beginner/accomplished beginners though mostly just identified the problem and sometimes a solution. Because fewer processes and so fewer aspects of the problem were considered, the beginner/accomplished beginners' reflections appeared simpler. Because they failed to evaluate the episode, they appeared less critically aware. Because they failed to perceive the problems' causes, their approach appeared less principled. For instance, the experienced teachers always identified the cause and offered solutions that referred to the cause so if pupils misbehaved, experienced teachers recognised the task was too challenging and offered extra help. The beginners/accomplished beginners though lacked such principled reasoning and responded with superficial, short-term solutions such as punishing the miscreants.

3.2 **Finding 2: Reflective capacity developed between post-lesson Interviews 1 and 2 for beginner/accomplished beginner teachers**

I represented as percentages how often participants used various cognitive skills when reflecting on lesson phenomena to illustrate the focus of their thinking. My comparison of each participant's skill use in Interview 1 with Interview 2 revealed that the beginner/accomplished beginners started to reflect in more analytical, complex, critical and meaningful ways in Interview 2 (author, 2011). In Interview 2, all beginner/accomplished beginners increased their proportional use of analytical skills and decreased their use of Describing, suggesting their reflections became more analytical. Also, all beginner/accomplished beginners significantly increased their use of Commenting, the skill for promoting complexity, implying they reflected in more complex ways. Five out of six beginner/accomplished beginners increased their proportional use of Evaluating, implying they thought more critically about the value of their lessons. Finally, although there was little change in how often participants used Pedagogic Reasoning, five out of six beginner/accomplished beginners increased their use of Pedagogic Reasoning at Intermediate level. This implies they thought about teaching using ideas drawn from pedagogy, to develop deeper understandings of their teaching.

However, four of the six beginner/accomplished beginners had little actual teaching experience between Interviews 1 and 2. One accomplished beginner taught just three English lessons, another taught six and two beginners did not teach at all. These participants then had limited opportunity to develop by actually reflecting on practice but still seemed to develop their reflective capability. This implies some component of the research process actively promoted reflective capability.

3.3 Finding 3: Co-planning proved an effective point of intervention for developing reflective capability

There were three main activities in my study that could have fostered reflective capability: diary writing, co-planning discussions, post-lesson discussions. From these, all beginner/accomplished beginners identified co-planning as the critical source of learning.

All nine participants characterized co-planning talk as analytical, involving problem solving and a questioning style that elicited their reasons underpinning their thoughts and actions. Sometimes the interaction was exploratory and collaborative, at other times more directive when I provided input on pedagogy, information on the teaching context, or demonstrated various teaching or thinking skills. The beginner/accomplished beginners all attributed to co-planning, the developments they perceived in their own Problem Setting, Interpreting and Pedagogic Reasoning. Significantly, they suggested developments in these skills enhanced their post-lesson reflective capability.

3.3.1 Problem Setting

All beginner/accomplished beginners maintained they learnt from co-planning how to frame their planning situations. Their thinking became more principled and interconnected so they could identify their goals more easily plus the steps needed to achieve them. Importantly, some suggested that because of this development, they could better interpret phenomenon post-lesson, better perceive relationships between concepts and procedures in their teaching:

> *It was the most useful to learn something about building the lesson, I can see some connection between aims, stages, how I can get the aims, what do I have to do the lesson, what I want to do and how to do and it's clearer for me when we talking in past too* (in past = post-lesson discussions).   (Accomplished Beginner)

3.3.2 Interpreting

Several beginner/accomplished beginners maintained that co-planning pushed them to be more self-questioning which also facilitated their clarity of perception in post-lesson analysis:

> *You make me think of the lesson parts and can they together fit or not and why and why not and why and it helps for me to make something clear for me to talk after* (talk after = post-lesson discussions).   (Beginner)

Co-planning also fostered teachers' predicting skills to support the interpreting skills critical to both reflection-in and on-action. Reflection-in-action proved particularly challenging and I often noted how while teaching, the beginner/accomplished beginners failed to interpret their situations and recognise or respond to problems that arose. Co-planning seemed to prime teachers to do this more readily. Once Amélia (Beginner) could not elicit illness vocabulary (e.g. *headache*) from her pupils. In response, she guided them to the words she wanted, first unsuccessfully through explanation, then successfully through visuals and gestures. For me, the episode was without real significance as it occurred smoothly. However, during the post-lesson discussion, Amélia selected this episode to discuss and in doing so, referred to two theoretical principles to explain her actions: that teacher support should be contingent on pupils' needs; that pupils are skilled guessers in meaningful contexts, so can understand unfamiliar words from visual clues rather than explanation.

During co-planning, we had not predicted this particular event but had discussed unresponsive pupils at a different lesson stage. To speculate, our discussion may have sharpened Amélia's sensitivity to cues in the context so she was primed to recognise and define problems that occurred while teaching, and respond appropriately. In other words, co-planning fostered reflection-in-action. It also fostered her reflection-on-action in that she selected for post-lesson analysis, episodes critical for her own growth and development, in this case, the use of theory to explain her practice. Co-planning then also cultivated Pedagogic Reasoning.

3.3.3 Pedagogic Reasoning

In the study's early stages, the beginner/accomplished beginners tended to use just personal experience rather than pedagogy to explain their understandings of teaching, suggesting they could not yet link their theoretical knowledge to their actions in the classroom. However, as the `Amelia` example above illustrates, co-planning seemed to nurture Pedagogic Reasoning, and this was something several teachers referred to, that co-planning helped *to link the theory and the practice...it's the most important* (Accomplished Beginner).
To conclude, this section has highlight three main themes:

- The beginner/accomplished beginner teachers reflected differently from and less effectively than the experienced teachers especially in the study's early stages
- The beginner/accomplished beginners' reflective capability developed over the study
- The beginner/accomplished beginners attributed this development to co-planning.

4. Discussion

The key question that emerges is why co-planning rather than post-lesson discussions proved more powerful to the beginner/accomplished beginner teachers. Traditionally, retrospective reflection is believed to help teachers develop their practical knowledge by discussing teaching problems after they have occurred. However, this study's beginner/accomplished beginners had difficulties with various aspects of problem solving which may have hindered their ability to learn by analysing their own practice. To speculate, these difficulties may have two causes. The traditional nature of Hungarian education may create very specific training needs for Hungarian learners. For instance, teachers tend not to use tasks such as project work (Keber, n.d) that allow pupils to develop throughout their schooling, the strategic thinking skills underpinning reflection.

In teacher preparation, the low number of TP hours, strict mentoring and assessment systems may encourage students to learn for good marks rather than self-development, to constrain beginner teachers from experimenting, exploring their practice, truthfully acknowledging their problems. As a result, the eight subskills identified earlier as underpinning reflective thinking, have little scope to develop. This in turn implies that learners from such traditional educational backgrounds may need very explicit input on what exploring one's practice actually entails and structured guidance on how to accomplish this, before they can be expected to reflect.

In addition, if reflection can indeed be interpreted as skill-based and acquisition is developmental, then beginner teachers similar to novices in other domains may initially lack the subject knowledge and processing strategies needed for effective problem solving (Ericsson & Lehman, 1996). Beginners in the early stages of skill acquisition may need very structured support to develop the strategic thinking skills underpinning reflection. My findings suggest that this support is better provided through co-planning with its focus on anticipatory reflection than the retrospective reflection of post-lesson discussions and diary writing, for the following reasons.

First, co-planning creates a learning environment that enables principles of `Cognitive apprenticeship` (Collins et al., 1987) to come into play and this can provide the very structured cognitive support that beginners need. Through observation and guided practice, I as an expert, showed novice English teachers the steps involved in solving problems before they occurred, in particular how to recognise and define problems. For instance, during co-planning participants and I frequently acted out prospective teaching episodes. I as 'Teacher' predicted then demonstrated how to manage potential problems and the participant responded as 'Pupils'. Then we swapped roles. As 'Pupils' they observed me modelling skills such as Problem Setting, Interpreting, Predicting and Pedagogic Reasoning, as 'Teacher' they practised these in real-life settings that were challenging but safe, in ways that enabled me to scaffold and coach performance. Therefore through repetition with informed feedback, there was ample opportunity to foster the subskills of reflection that enable individuals to learn from practice.

Second, co-planning provided input on thinking skills and pedagogic theory in ways compatible with the beginner/accomplished beginners' learning needs, at an optimal time. Co-planning combined input with requests for articulation and reflection on-task, which for Berry and Broadbent (1984) is a more effective combination than articulation and input post-task, as with post-lesson discussions. For example, once Atilla (Beginner), started planning by immediately working out the details of the first fun activity in his book, skipping the crucial stage of Problem Setting. I halted his progress with questions: *Why do this? What do you want the children to do by the end of the lesson? Why? What words do they need...Do they know...Don't they know? Which* (words) *will you teach actively? How? What are the problems?* These questions drew Atilla's attention to his 'given state' (Mayer, 1996, p. 550) of pupils' knowledge; his goals; possible problems (Davidson & Sternberg's 'obstacles', 1998, p. 488); to pedagogy and whether pupils needed to understand or produce new language as this affects the teaching activities (Mayer's 'operators', 1996, p. 550). In other words, my questions pushed Atilla through the process of 'representing' (Mayer, 1996, p. 551), helped him be deliberative, to frame his situation and scaffolded him through the task of Problem Setting at a time when input on this skill was likely to be most memorable.

Third, co-planning as ill-defined problem solving, generated more of the 'analysing' talk more likely to trigger cognitive change (Ericsson & Simon, 1980) than the talk generated by the well-defined situations of post-lesson discussions. Therefore, co-planning may be more likely to promote in-depth understanding and learning. Indeed, several beginner/accomplished beginners referred to the greater impact co-planning talk had on their pedagogic thinking over post-lesson talk. As one stated: *Talking before the lessons* (was important*) because I thought more deep why I do this and how do I do it*. (Accomplished Beginner).

In brief, features of co-planning can interact in ways not possible with post-lesson discussions to provide the cognitive support beginner teachers may need. This may explain why inexperienced teachers perceived co-planning to be such a powerful learning tool.

5. Conclusion: Implications for teacher education

My own work is a small-scale, qualitative investigation and I recognise that I should be cautious about generalisations I wish to make. However, my findings suggest that beginner teachers in early stages of skill development may benefit more from the directive assistance offered by co-planning than the assistance offered by post-lesson discussions.

If co-planning is indeed a powerful point of intervention in teacher learning, teacher educators should perhaps shift the current focus off retrospective reflection and post-lesson discussions onto anticipatory reflection in the form of co-planning. In Hungarian teacher preparation, it may even be beneficial to just co-plan lessons with beginners and postpone the use of post-lesson discussions until students have developed the skills needed for effective reflection. This may be a valuable future direction for primary teacher education in traditional learning contexts similar to the one described in this article.

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Appendix 1

This category system defines the six skills used by participants in their post-lesson reflections. The system distinguishes between the single descriptive skill of Describing, and five analytical skills which all involve some attempt to examine the constituents of a teaching experience, to understand how these constituents relate to better understand the whole.

Category System

Skill	Description	Example
Descriptive		
Describing	Teachers report classroom events.	*Then I stopped and told them 'OK listen to me. Here you're working in 3 groups'*
Analytical skills		
Pedagogic Reasoning	Teachers explain understandings of teaching using reasons from pedagogy, a linking of theory to practice (Shulman, 1987). Divided into three levels according to knowledge sources teachers used.	
	<u>Simple</u>: Personal opinion/experience/basic justifications used.	*We sang a song and said a rhyme because I like say a rhyme*
	<u>Intermediate</u>: Wider range of reasons used, including those from pedagogy, in a more analytical, questioning manner.	*it's easier them to remember the words 'cos they can touch and smell them. We learn about this in psychology*
	<u>Critical</u>: Knowledge relating to teachers' socio-cultural contexts used.	
Commenting	Teachers embellish talk to achieve complex ways of speaking.	
	<u>Commenting Opinion:</u> Expressing view/opinion on previous statement.	See example in 2.3.2
	<u>Commenting Elaborating</u>: Giving examples of, adding information to, making observations about previous statement.	
Evaluating	Teachers make evidence-based judgements on events/tasks, the value of their or pupils actions (Richards & Lockhart, 1994).	*it's a good activity but they have problems with this 'cos they don't know where do the tick, where the cross.*
Predicting	Teachers forecast prospective teaching phenomena.	*I wrote some optional activities 'cos if an exercise doesn't work how I thought, then I have to change on-the-spot.*
Problem Solving	Problem solving was analysed through four processes: ~ Identifying problem's most significant features: *What's the problem? (*Mayer's 'representing', 1996, p. 551) ~ Identifying problem's cause to recognise problem's underlying principles: *Why did this occur*? ('representing', ibid) ~ Identifying solutions: *How can I solve it?* ('planning' and 'executing', ibid). ~ Evaluation: *What comments/reflections do I have on this episode?* ('controlling')	*There are some pupils not interested in studying English (*Identifying prob*.),* *the only thing that worked with them, is when they create something in groups. Then they are really interested* (Solution*). However if we do these things all the time then they don't learn the material they should by the end of the school year* (Evaluation). *English is a bit over their head, they always feel that the others are much better* (Identifying cause).