

Interactive and Child-Centred Research Methods for Investigating Efficacious Agency of Children

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ABSTRACT: Children need support to strengthen their efficacious agency, which, in turn, increases their well-being and learning capabilities. Efficacious agency includes the idea of children's active participation, and in research, it is necessary to develop multiple methods for a child-centered approach for examining it. In this article, we present two case studies of children's (aged 6 to 10) perceptions of success. The first is comprised of stimulated recall interviews and a video observation, and the second uses children's photographs as triggers for elicitation interviews. We aim at showing that interactive and child-centered methods in authentic environments can overcome current challenges in studying children, and can produce deeper knowledge about children's efficacious agency in learning contexts.

Keywords: *Efficacious agency, self-regulated learning, child-centred research methods, formal and informal contexts*

Introduction

The learning contexts that children are living and acting in are becoming more complex and challenging. Today, it is all children, not only those at risk, who need support mechanisms to strengthen their potential and to gain skills for learning; in a larger frame-

work, they need efficacy to transform their own life activities and augment their well-being (Awartani, Whitman, & Gordon, 2008). Children are not merely passive recipients of socialization processes; rather, they should be active agents in their own learning processes (Hujala, Helenius, & Hyvönen, 2010). Their viewpoints help us understand how places, schools, teachers, and environments are linked to their engagement in learning (Smith, Duncan, & Marshall, 2005). Viewing children as social actors and co-constructors of their learning is not a novel orientation in the educational and social sciences, but grasping children's views about their own learning and their understanding of the process of learning has recently become a methodological focus in childhood research.

The theoretical framework for supporting and studying children's future competences is grounded in the concept of *efficacious agency*, the notion of which is built upon the theory of *self-regulated learning*. Self-regulated learners use a repertoire of strategies—cognitive, behavioural, and motivational—to guide and enhance their learning process towards the completion of academic tasks and the attainment of a high level of engagement (Winne & Perry, 2000; Zimmerman, 1986). Efficacious agency also consists of *self-efficacy beliefs* (Bandura, 1997; Schunk & Usher, 2011) and *resilience* (Masten, 2001). *Self-efficacy beliefs* refer to children's confidence in their ability to succeed in a specific learning situation (Bandura, 1997; Maddux & Gosselin, 2003). *Resilience* points to competence building, protective factors, and well-being (Johnson, 2008; Martin, & Marsh, 2005), as well as to a positive attitude in relation to learning, which can make the child resilient (Tang & Butler, 2012; Yeager & Dweck, 2012). In sum, efficacious agency in this study context indicates aim for supporting children's awareness of their potential for being and becoming competent. It is used also for identifying features behind *successfulness* in order to purposefully self-regulate their cognitive, behavioural and motivational actions when aiming for success. Self-regulation is "an umbrella concept" for efficacious agency, which requires self-efficacy beliefs and can lead to resilience. We consider efficacious agency also as a contextual factor in early childhood education and elementary school, where efficacious agency can be developed by supporting both child's self-efficacy, and their relationships between teacher, peers and homes (Woolfolk 2013).

In order to explore child-centred methods for investigating efficacious agency the salient question is whether children are able to regulate their cognition, emotions and behavior; which grow from experiences. As Bandura (2001, 4) describes "we are agents of experience rather than simply under-goers of experience". This refers to the active role of the individual in constructing his or her experience of the world. However, there has been skepticism regarding young children's capacity for self-regulation and self-efficacy

(Mullin, 2007; Paris & Lung, 2008). For example, earlier research has suggested that children younger than age ten years have difficulties in coordinating metacognitive processes required to complete complex and multifaceted tasks (Pintrich & Zusho, 2001; Winne, 1997). Contemporary views propose, however, that even young children are able to regulate their learning behavior. Within these views, children are regarded as skilled co-constructors of their own learning and their environment (Perry, 1998; Tirosh, et al., 2013; Wilson & Trainin, 2007). Perry et al. (2002) confirm that children can and do engage in self-regulated learning in classrooms, if they are afforded to engage in complex and open-ended activities, make choices that have an impact on their learning, control challenges, and evaluate themselves and others. Recent meta-analysis by Dignath, Buettner and Langfeld (2008) suggests, that even the youngest students in elementary school profit from interventions that are aimed at promoting self-regulated learning.

Researchers have also confirmed the positive influences of agency on children's development during the early childhood years (Mashford, 2011). When children are supported in learning to exhibit agency, they also learn about success, failure and resilience (Macfarlane & Cartmel, 2008). Teachers can implement variety of practices for supporting self-regulated learning already before school age. (Chatzipanteli, Grammatikopoulos, & Gregoriadis, 2013; Perels, Merget-Kullmann, Wende, Schmitz, and Buchbinder, 2009; Rasku-Puttonen, Lerkkanen, Poikkeus & Siekkinen, 2012).

In sum, the theoretical concepts behind these views consequently include the notion that the intersection of the individual and his contexts is the centre of attention, as opposed to the individual and his/her context as separate entities (e.g., Hujala et al., 2010; Järvelä, 2001; Tudge, 2008). Because learning processes are always situated in certain context, self-regulation and self-efficacy are also influenced by contextual variables. Supportive practices in the classroom context and the possibility of making decisions have a positive influence on self-regulation and self-efficacy, as they allow children to feel successful and to enjoy themselves. On the contrary, negative contextual factors, such as task difficulty, environmental distractions in the classroom, and insufficient time to finish tasks, may hinder self-regulation processes (Scott & Butler, 2012).

We argue, that *efficacious agency* implicitly includes the idea of children participating in various activities, including research, which allow them to have choices and to express opinions. Focusing on children's participation, agency, and thoughts is a desirable research initiative, but it is challenging to achieve (e.g., Cree, Kay, & Tisdal, 2002; Pole, Mizen, & Bolton, 1999). One problem is that research methods involving the participation and viewpoints of children are not yet sufficiently developed (Bland & Sharma-Brymer, 2012; Morgan, Gibs, Maxwell, & Britten, 2002). Previous research on efficacious agency has mostly focused on assessing school-aged children's academic

self-efficacy using quantitative methods and self-reports (Usher & Pajare, 2008; Klassen & Usher, 2010). However, researchers have recently begun to assess self-efficacy and self-regulated learning in more contextual and holistic ways (Ainley & Patrick, 2006; Järvelä & Järvenoja, 2011; Olli, Vehkakoski, & Salanterä, 2011; Perels, Dignath, & Schmitz, 2009; Schunk & Usher, 2011). Despite this progress interactional and child-centred data are still somewhat underdeveloped, although the importance of using multiple child-initiative (Darbyshire, MacDougall, & Schiller, 2005) and reflexive (Davis, 1998) methods for studying children's efficacious agency has been acknowledged.

In our previous study (Määttä, Järvenoja, & Järvelä, 2012), we found empirical evidence of efficacious-interaction situations that provide an optimal learning environment for efficacious agency to develop and appear. Based on the findings, we argue that in studying efficacious agency in different learning situations, we need to consider new concepts and new ways of analysing and measuring the effectiveness of learning. In this article, we suggest interactive and child-centered methods in authentic environments for studying children's efficacious agency. The aim of this article is twofold. First, it focuses on the *methods used for studying children's efficacious agency*, particularly on *how efficacy agency and successfulness are revealed through video-stimulated recall interviews and a photo-elicitation method in authentic and context-bound research settings*. Second, child-centred perspective in the research process is emphasized, particularly on *ways to increase children's participation in the research process*.

Children's participation in the research process

Most methods that investigate children's experiences are grounded in 'research on' rather than 'research with' or 'research for' children (Darbyshire et al., 2005; Oakley, 1994). These approaches ignore the idea of children as active agents. In this article, children's participation is highlighted, particularly from a methodological point of view. Our review of earlier studies reveals that the notion of children's participation in research is a broad concept (see Brady, 2007; Gallagher & Gallagher, 2008).

Previous studies have given children roles as partners, participants, and subjects in the research process. In these roles, children are considered as having rights rather than being simply the recipients of adult input, which, in practice, denotes the means by which the children's voices are heard (Brady, 2007; Cheney, 2011; Dockett & Perry, 2005, 2007; Pole et al., 1999). Children can also be designers, creators (Lim, 2008), and action researchers (Cox & Robinson-Pant, 2005). The extent to which children take part

in these roles varies a great deal. Children's roles have also been examined through the concept of *agency* (Mason & Hood, 2011; Pole et al., 1999). This viewpoint includes the idea of children as social actors, subjects, partners, knowers, and contributors; in addition, children's experiences are at the centre of the research process. It is important to count on children and to research collaboratively with them (Mason & Hood, 2011). We agree with Pole et al. (1999), who stated:

Research inevitably reduces children to the status of, at best, participants rather than partners and, at worst, objects of the researchers gaze. The reasons for this relate to issues of methodology rather than method in that what counts as acceptable academic knowledge is defined in relatively narrow and conservative terms by academics who are invariably adults and to children's lack of research or academic capital. (p. 39)

Previous studies have used child-based or play-based methods, such as conversations with and without the use of picture books, the compilation of portfolios, and digital picture taking, as well as writing, drawing, and playing (Bland & Sharma-Brymer, 2012; Burke, 2005, 2007; Cox & Robinson-Pant, 2005; Dockett & Perry, 2005, 2007; Einarsdottir, 2005; Eldén, 2012; Hyvönen & Kangas, 2007; Barker & Smith, 2012; Mand, 2012). In addition, children have been listened to through questionnaires (Awartani et al., 2008) and through their input in planning and designing workshops (Meskanen & Teräväinen, 2009). These research projects have justified their methodological decisions by referring to the children's right to have their views taken into account (Brady, 2007; Cree et al., 2002; Einarsdottir, 2005; Morgan et al., 2002; Weller 2012), especially in cases in which children are at the centre of the action.

Critical consideration for children in the field of research is needed. Gallagher and Gallagher (2008) warn against the naive use of participatory methods. They challenge researchers to discuss child-centred methodological choices, which may be as problematic and ethically crucial as other child research methods. We agree with Perry and van de Kamp (2000) that a naturalistic and authentic setting could more accurately show what children are actually doing as opposed to what they say or what they tell us.

It is notable that the results produced by participatory methods are not always as useful as those produced when children have participated in the research. There is a demand for researchers to question and assess the power relations between adults and children (Gallagher & Gallagher, 2008). The aim is not to try to make children agentive, but rather to understand and examine efficacious agency as a phenomenon. In that sense, the concept of 'fitness for purpose' has been used to illuminate the matching of methods to the context and purpose, which should ensure that the results are true and accurate. How-

ever, there is always uncertainty, as well as the impossibility of fully knowing the children's perspective (Abbot & Langston, 2005; Dalli & Te One, 2012).

Attempts to place children and their experiences more centrally within research cannot rest on a theoretical framework alone; such attempts necessitate a methodology to underpin the framework, as well as critical and reflexive examination of the entire research process. Spyrou (2011) argues that just giving children a voice does not guarantee better understanding or authentic knowledge of children and childhood. Thus, recent research on children's voices has turned to the visual, and preferably to the combination of visual and verbal. No single method can guarantee successful representation in itself. Being reflexive about the process demands that researchers go beyond their comfort zones and accept messiness and ambiguity (Eldén, 2012).

Two methods for capturing children's efficacious agency and increasing their participation and agency in the research process are outlined in this article. These methods have been used in formal and informal contexts at all stages of the research process. The focus of these methods has been more on the interactional perspective than on individual evaluations. From an ethical and power-relation perspective, methodological reflections are needed as well (e.g., Gallagher & Gallagher, 2008; Spyrou, 2011). In our studies, children were informants who provide knowledge (data) by talking with researchers. In addition, they took and/or responded to photos and videos made during the lessons. Children's interpretations about the realised and chosen situations were linked to their cognitive and emotional processes. Since the children's perspectives are somewhat lacking in earlier agency studies, we can in our approach, through children participation and reflections, obtain more detailed knowledge about the phenomenon of efficacious agency.

Next, we will discuss about *our two case studies* that we conducted within the same year. Both studies approached efficacious agency using a novel, reflective and child centred methodological approach. Both studies took advantage of interviews that were stimulated by using video data or photos. In these two studies, the stimulated recall interview was developed using a photo-elicitation interview method with a playful approach.

Case 1: Children's experiences of confidence and success regarding the development of their beliefs about self-efficacy

A stimulated recall interview (Ericsson & Simon, 1993) was selected as a qualitative method for studying and understanding children's efficacious agency in authentic learning situations in the classroom context. The study focused on children's immediate experiences of confidence and success in different authentic learning situations. We proceeded by identifying successful learning situations in specific classroom contexts that supported their self-efficacy (Määttä & Järvelä, 2013). The specific research questions addressed are as follows:

- 1) *How do children explain their experiences with success?, and*
- 2) *How confident do children perceive themselves in the learning situations?*

Participants and study design – Case 1

The participants were 24 children aged 6 to 8 years ($M = 7.4$), who were selected from 69 children. The selection of the participants was based on teachers' evaluations of children's social competence. The teachers suggested three highly socially competent children and three children with low social competence from every classroom, resulting in 12 girls (high social competence) and 12 boys (high social competence). We believe that efficacious agency is highly affected by one's social competence, although social competence itself was not the focus of this study. At the beginning of the data collection process, the children were asked whether they wanted to participate in the study and they were told that their participation was not compulsory and that they could refuse to take part at any time. Parents were informed about the study and their children's participation. Both the children and their parents completed consent forms.

The stimulated recall interviews were based on video observations conducted in four Finnish primary school classrooms at three grade levels: preschool ($N=4$; 17%), first grade ($N=9$; 37%), and second grade ($N=11$; 46%). The data collection, including video observations in the classrooms and video-based stimulated recall interviews, lasted for seven weeks.

Four researchers worked in pairs in the classrooms during one school day, making it possible to collect and edit the video observations and conduct and record the interview in the same day. Classroom settings and the topics of the lessons varied from mathematics and literature to art and science; specific topics or subjects were not selected. Each researcher observed the participants one at a time during one to two lessons. From each videotaped lesson, the two researchers negotiated and selected one or two video clips that represented a moment in which the participant expressed success, such as finishing a task, for the interview. The purpose of these clips was to serve as a stimulus in the interviews. These moments were related to regular classroom activities, such as group

work or a mathematics problem. After each lesson, the participant observed during the lesson was interviewed using these situations as a stimulus. Stimulated recall interviews were conducted in order to obtain the participants' experiences with success and perceived competence in classroom activities. Selected clips were supposed to offer children a tool to reflect upon aspects of their efficacious agency by sharing their thoughts about success and competence.

The interviews were half-structured and aimed at creating as much dialogue as possible between the child and the researcher. The interview procedure began by researcher first viewing a video clip together with each participant as many times as participant wanted. The interview questions addressed different aspects of efficacious agency. First, the interview questions aimed at creating a shared understanding of the situation between the researcher and the participant with following questions:

1. What were you doing in the situation?
2. What were you supposed to do in the situation?
3. How did you feel in the situation?

Cards with pictures of bears depicting different emotional states were used to help children name their emotions in the situations under discussion. Next, the interview questions proceeded to explore participant's experiences with success and perceived confidence:

4. How did you succeed in the situation?
5. Did you think that you could succeed in the situation?
6. How sure were you?

In order to get the children to reflect upon efficacious agency more thoroughly, the researchers asked the children to elaborate on their view after every answer. That is, if a child said that he or she had succeeded well, the researcher asked for elaboration regarding why the child thought that he or she had succeeded. In general, the questions were aimed at approaching success and confidence in a way that would make it easy for the children to reflect upon their experiences. Each participant were interviewed twice ($n = 48$), and each interview lasted an average of 20 minutes. The stimulated recall data constituted 59 videotaped lessons (35 hours in all) and 60 clips, each lasting an average of 40 seconds.

Data analysis – Case 1

The triangulation of the qualitative analysis included the identification of successful episodes from the video observation data, and exploring experiences with success and perceived confidence from stimulated recall interview data.

Experiences with success

Qualitative content analysis focusing on interview question 4 was conducted to identify participants' experienced success and coded into two categories ($\kappa = 1$): (1) "Succeeding well," for answers in which the child indicated succeeding in a specific situation or task, such as by saying, "I did pretty well." (2) "Succeeded poorly," for answers in which the child indicated not succeeding in the situation, such as by saying, "I didn't do that well there" or "Not well."

Perceived confidence

Again qualitative content analysis focusing on participants' perceived confidence was used to analyze participants' responses to interview questions 5 and 6. The responses to question 2a were grouped into "yes" and "no" expressions. The responses to question 2b were grouped into three levels: (1) "Very sure," reflecting a participant's expression of being highly confident in a specific situation or task; (2) "A little bit," reflecting a participant's expression of being only slightly confident working in a specific situation or completing a specific task; and (3) "Not really sure," reflecting a participant's expression of not being sure in the situation. These questions created a 6-point scale describing the participants' belief in their ability to succeed in a particular learning situation ($\alpha = 0.833$). For example, if a participant answered "yes" to question 2a and "very sure" to question 2b, his or her confidence was graded a 6. If a participant answered "no" to question 2a and "not really sure" to question 2b, his or her confidence was graded a 3. If a participant answered "no" to question 2a and "very sure" to question 2b, his or her confidence was graded a 1. Applying this scale, values 5 to 6 indicated high confidence, values 3 to 4 indicated moderate confidence, and values 1 to 2 indicated low confidence. There were also situations where participants were not able to answer either of the questions.

Results – Case 1

How do children explain their experiences with success?

The children experienced success in the 93% of the time observed learning situations selected by the researchers; meaning that only four children experienced a learning situation in which they did not experience success. In one of these situations, the activity involved an Easter arts and crafts activity. The teacher made samples and provided detailed written instructions on how to fold and cut different decorations. Tom, a sev-

en-year-old first grader, had a difficult time beginning the task. In the video clip, he read the instructions repeatedly but could not decide how to start the activity. In the interview, he explained he was unsuccessful because he did not work hard enough and was not able to finish the card. In the other situation, Vivian, an eight-year-old second grader, wrote a list of questions for a literature competition. Although she wrote many questions and received positive feedback from the teacher, she stated in the interview that she did not feel successful in the situation and was unable to provide a reason for feeling unsuccessful.

Example 1 describes an interview situation where a child was telling about her experiences with success. In a video clip she was making notes about flowers to her note book.

Example 1

Interviewer: *How did you succeed in the situation?*

Child: *Pretty well.*

Interviewer: *Can you tell me why you succeeded pretty well?*

Child: *Because it felt good and teacher said I was doing great.*

Although children were experiencing succeeding well in the situations, it is notable that 42% of the time, when the children were asked to explain why they experienced succeeded, they were not able to name any reason for their success.

How confident do children perceive themselves in the learning situations?

TABLE 1 The frequencies of children's responses to interview questions 5 and 6

		Question 6							
		Very sure		Little bit sure		Not sure		No answer	
Question 5		f	total %	f	total %	f	total %	f	total %
Yes		20	33.3	22	36.7	3	5	0	0
No		0	0	0	0	8	13.3	3	5
No answer		0	0	0	0	0	0	4	6.7
Total		20	33.3	22	36.7	11	18.3	7	11.7

The results showed that participants believed they could succeed (question 5) in 85% of the situations. In eight situations, however, participants indicated not believing in their capability to succeed. With respect to the strength of their belief (question 6), the participants were very sure in 33% of the situations, a little bit sure in 37%, and not really

sure in 18%, as the Table 1 illustrates. In seven situations, the participants were not able to answer either question 2a or 2b.

According to the overall analysis, 11 of the children had high confidence (45.8%), 7 had moderate confidence (29.2%), and 6 had low confidence (25%). Examples 2 and 3 describe interview situations in which the children answered questions 5 and 6. Example 2 illustrates a discussion with Eva (the child's pseudonym), a seven-year-old first grader who felt highly confident. The video clip under discussion was from a math class where she was measuring different items with a scale. Her task was to put the items in the right order: the heaviest first and the lightest last.

Example 2. High level of confidence

Interviewer: *Did you think you could succeed in the situation?*

Child: *Ehem...*

Interviewer: *How confident were you that you would succeed in that situation?*

Child: *I was sure that I would make it. I was really confident.*

In the interview, Eva explained that she had felt highly confident in the situation because she was well instructed by the teacher and knew how to proceed with the task. Example 3 illustrates a discussion with Tom (the child's pseudonym), an eight-year-old second grader who is taking part in arts and crafts related to Easter. The teacher had made some samples and written detailed instructions on how to fold and cut different kinds of decorations on the Easter card. In the video clip, Tom read the instructions over and over again but was not able to decide how to start the activity.

Example 3. Low level of confidence

Interviewer: *Did you think that you would succeed in that situation?*

Child: *Not at all.*

Interviewer: *Can you tell me why you weren't confident?*

Child: *Because I didn't like it [making the card] and was just messing around with my stuff.*

In the interview, Tom explained that he was not confident or successful because he did not work hard enough and was not able to finish the card.

Conclusions of the first study

On the basis of the findings of this study following conclusions can be drawn. Although the majority of the children mentioned experiencing success, they were not able to find

the reason behind the success. In terms of efficacious agency, it seems that children rely on the positive emotions that they feel in the successful situation. In addition they expect teachers to approve the successful contribution. In fact, agency is in teachers, not in children, seen from children's perspective. Regarding confidence, most of the children rated them highly or moderately confident, but their justification is again related firstly to teachers' activities and instructions, and then children's feelings and behaviour.

Methodologically, the video observations were enriched by the children's elaborations of the classroom learning situations in which they were actively operating. The children were important informants regarding their personal confidence levels during the different learning situations. However, in this study, the children's role as active participants was not satisfactorily achieved. This limitation was addressed in our second case study.

Case 2: Children as photographers of their efficacious agency

In the second case study, photo-elicitation interviews (Harper, 2002; Rose, 2012) were selected as the main method for understanding children's efficacious agency in naturally occurring situations in the classroom and in informal contexts. The aims of this study were to investigate the elements of children's efficacious agency in terms of their subjective experiences with success and the way they recognize it in others. The specific research questions was:

- 1) *How do the children experience success in different learning situations? and,*
- 2) *How do children recognize success in others?*

Participants and study design – Case 2

The participants who collected the data in this phase were the same children who had participated in the case study discussed in the previous section. A few of the participants were omitted from the study, resulting in 17 children aged 7 to 9 years ($M = 7.9$). Data gathering was conducted again in four Finnish primary school classrooms at three grade levels: first grade ($N=2$; 12%), second grade ($N=5$; 29%), and third grade ($N=10$; 59%). Three of the classrooms used were the same as in the previous data-gathering session. The fourth classroom was changed, however, because a few of the participants from the previous study had been transferred into it.

In this data collection process, the method was developed to be more child-centred. That is, this time, children were responsible for conducting the observation protocol through a 'detective course'. Before the actual data gathering began, a detective course was provided for the children to engage and instruct them in how to act like detectives. In the first course meeting, the researchers introduced the idea of 'detectives of success and achievement' to children. That is, children were told that they would have detective equipment for tracking, capturing, and saving moments of success and achievement in their classrooms. Through an open discussion about success and achievement and what success and achievement 'look like', the researchers and children began orienting themselves towards the upcoming detective task.

In the second meeting, the detective equipment was introduced to children. For capturing moments of success, detectives would have an Apple iPod Touch and a detective's photo log to keep a record of the pictures taken. Detectives were supposed to write down the basic information for every picture in the photo log, such as date, time, and what happened in the situation. The photo log was supposed to help the child remember the context of different photos for the forthcoming interview. In the third meeting, the children practiced using the iPods to take photos and videos. With additional tools, they could audiotape speech for the pictures and videos and create their own stories to describe the captured situations more thoroughly.

Photos were used as stimuli during the interview to provide children a visual referent as a starting point for conversations about their experiences. The interview process began with the researcher viewing all the photos the child had taken and letting the child choose the one(s) s/he wanted to talk about.

The aim of the interviews was to get an idea of the children's views of success and competence by directing the interview questions towards the research topics. The interview started with the following questions:

1. What happened in the situation?
2. Why did you take this photo?
3. Who was/were successful in this situation?

Next, the interview questions aimed at exploring reasons why children believed that someone was succeeding and the ways they were succeeding:

4. Why do you think s/he succeeded in the situation?
5. What does this kind of success require?
6. Did he/she get any help?

*If the picture or video was from a situation where a ‘detective’ had succeeded, the questions listed in the previous section were used.

Children were encouraged to answer with whatever came to mind and were reminded that there were no right or wrong answers to these questions. Overall, the children took 438 pictures and 34 video clips, both in the classrooms and in informal contexts such as their homes. The researchers had 29 interviews with the children (total of 9 hours), and the questions asked were based on the photos or videos that the children had taken. In this study, efficacious agency was approached by investigating *how children themselves understand the factors supporting their succeeding*.

Data analysis – Case 2

The qualitative data analysis consisted of identifying children’s experiences of success and successful moments from the photo-elicitation data.

Children’s experiences with success in different learning situations

First, the learning situations were identified and coded into three categories ($\kappa = 0.795$): (1) whole-class activities, (2) small-group activities, and (3) independent activities. Second, the ways children experienced succeeding (questions 4 and 5) were coded into four categories ($\kappa = 0.703$): (1) by myself, (2) by him/herself, (3) together with, and (4) with help.

Recognizing the success

The reasons identified by the participants for their own or others success were grouped into nine categories ($\kappa = 0.708$): (1) task-related factors, (2) domain-specific skills; (3) social skills, (4) previous experiences, (5) mastering a task, (6) feedback and support, (7) thoughts and feelings, (8) personal abilities, (9) own behavior and actions.

Results – Case 2

Experiences of success in different learning situations

Three types of learning situations ($f = 48$) were identified from the photo-elicitation interview data. Independent activities ($f = 36$; 75%) contained activities such as calculating sums in a math book or reading a book. In small-group activities ($f = 8$; 17%), the

children worked collaboratively on certain tasks, such as creating a story about dragons. In whole-class activities ($f = 4$; 8%), the teacher played an active role in guiding the children's activities; for example, when a class began a new topic, the teacher led joint discussions with questions and provided instructions, support, and feedback. In these learning situations, children experienced succeeding in four ways. Most experiences with success occurred in situations in which the children evaluated their peers succeeding independently (41.6%) or described their own success (28.1%). The children also experienced success with help from their teachers or peers (15.7%) and together with their peers (14.6%). Example 4 describes an independent work situation, which was the most typical learning situation in which the participants described their peers succeeding.

Example 4. Succeeding by themselves

Interviewer: *Why did you take this photo?*

Child: *Well, we had a math class and my friend calculated one very difficult sum by herself.*

Interviewer: *Why do you think she succeeded in the task?*

Child: *She likes math and looks happy in the picture. Look, she is smiling. And she finished it.*

When children were asked how they knew that they or someone else was succeeding, they named reasons such as feeling confident, looking happy, trusting their own capabilities, liking the activity they were involved with, and completing the task as the most powerful indicators of success.

Example 5 describes a situation where the child was succeeding together with peers. This was found only in small-group activities.

Example 5. Succeeding together with peers

Interviewer: *What happened in the situation?*

Child: *We had a group work. I worked together with two girls. We were supposed investigate a myth of Easter witches and try to find evidence for their existence.*

Interviewer: *Ok, how did you succeed?*

Child: *Pretty well.*

Interviewer: *How do you know that you succeeded well?*

Child: *Because we had worked together before and knew each other. When I couldn't find information, someone from the group helped me. Together we wrote five pages!!*

In these situations, children experienced success because they had strong social skills and felt confident because they were supported and encouraged by other group members. Example 6 illustrates a situation that was most typically found in whole-class learning situations.

Example 6. Succeeding help with

Interviewer: *What happened in the situation?*

Child: *We were baking in the classroom and Olly (child's pseudonym) broke an egg.*

Interviewer: *How did he succeed?*

Child: *Pretty well because he broke the egg nicely.*

Interviewer: *Ok, can you tell me why he succeeded?*

Child: *Because the teacher helped him. She gave instructions and supported him during the activity.*

In these situation children were successful because the teacher supported them and gave feedback about their progress.

Recognizing success

The children provided nine factors that influenced either their own or another's success. The reason provided most often was thoughts and feelings (27.9%), wherein the children said that either felt or sensed someone else being confident and happy, trusted their own capabilities, and liked the activity they were participating in. Mastering the task (18.4%) was another powerful indicator of success and involved completing the task. The children's own behavior and actions (14%), including focusing, planning, practicing, and saying "I succeeded," and domain-specific skills (13.4%) were the next reasons provided. Domain-specific skills included such things as being able to count in math or read and write in literature. Feedback and support from teachers and peers influenced success 10.6% of the time. Factors that influenced success to a lesser extent included personal abilities (6.1%), such as persistence, creativity, and honesty; task-related factors (3.9%), such as getting high scores, winning the game, and instruction-related elements; previous learning experiences (3.4%); and social skills (2.2%).

Conclusion of the second study

Based on the second case study we conclude that children can identify and experience success in many situations in schoolwork. Identifying other children's success seems to be easier than own success. Completing the task and positive feelings denote to the success. Teachers' instruction and support, and collaboration in the group, for instance help giving and receiving can lead to successful experiences.

Methodologically, the idea of children as participants in research was taken further. In the video-based stimulated-recall method described earlier, children did not choose the situation for analysis, which may have made it difficult for children to recognize the nature of the given situations; i.e., if what she/he did in the video could be considered success. We also employed playful methods, such as detective role-playing, which boosted

the children's imagination and constituted natural ways for the children to express their thoughts and intentions (Hyvönen & Kangas, 2007).

Discussion

In this article, the focus has been on a methodological approach for researching children's efficacious agency. The first aim focused on developing methods to research children's efficacious agency; how efficacy and agency are revealed. The second aim focused on developing interactive and more child-centred research methods to investigate efficacious agency. Two different research approaches were used. In the first case study, the children were interviewed, and then their experiences of confidence and success were used to illuminate the concepts of efficacious agency. In the second case study, the main point, however, was to develop methods to capture the phenomenon of efficacy agency, which in this case was done using video observations, video-stimulated recall interviews, and photo-elicitation methods, together with the children's elaborations. These methods revealed features of efficacious agency in learning situations.

Supporting efficacious agency

Previous research has shown that environmental and personal factors interact to shape self-efficacy attributions and that contextual factors contribute strongly to an individual's self-efficacy (Scott & Butler, 2012; Woolfolk, 2013). Important contextual factors for identifying successful moment and reasons behind them in this study are teachers' role, peer's role and the role of emotions.

Teachers can support efficacious agency (Woolfolk, 2013). In order to support children's efficacious agency and engagement in learning (Winne & Perry, 2000; Zimmermann, 1986), attention should be paid to child-teacher interaction, because the teacher has the possibility to increase children's understanding about the task at hand in individual or collaborative learning situations. Teacher's role, similarly, is to support children's agency by allowing space for child-initiated sharing of ideas (Rasku-Puttonen, 2012). Therefore, as Pajares (2006) concluded, teachers are among those most familiar with the academic capabilities of their students, so their evaluative messages, support, and feedback carry added significance for young children. In addition, the teacher's role in facilitating help-seeking behaviour and self-regulated learning is a factor that con-

tributes to learning in the classroom (Tang & Butler, 2012) and in kindergarten (Perels, et al., 2009).

Peers, the other children, are important to take into account as a contextual factor, because they seem to be one of the primary sources for self-efficacy information. By observing, comparing and monitoring other's success or reaching goal, children gain insight into their own self-efficacy and learning (Woolfolk, 2013, 406).

Further, the reasons behind the children's levels of confidence and self-regulation that were achieved with our methods are important to acknowledge; *emotional states*, such as feelings and thoughts, were found to be the most important factors. These findings offer new insights into previous studies on the formation of efficacious agency and self-efficacy beliefs. For example, various studies have found that previous learning experiences are the most powerful source of building self-efficacy beliefs (e.g., Usher, 2008; Palmer, 2006; Bandura, 1997). However, in our study, the most powerful source was one's own thoughts and feelings (62%), and previous learning experiences were coded as reasons for experiencing confidence only 27% of the time. These findings might be explained by the fact that the young children may not have had enough previous learning experiences to build their beliefs of personal efficacy and competence, but rather rely on their feelings and emotions in the particular situation (e.g., Saarni, Campos, Camras, & Witherington, 2006). Another crucial factor for the children seemed to be the ability to succeed in learning new things and finishing different types of activities by themselves. It is notable that cognitive elements played a minor role, which means that teachers should pay more attention to supporting children's awareness of their own strengths and weaknesses and their making of reasoned decisions.

We conclude that data collection in various interaction contexts increases our understanding of efficacious agency. Naturally occurring informal contexts, such as casual situations in school settings, the home environment, discussions with parents, games with friends, and activities in the neighbourhood are potential sources of further support for children's efficacious agency and engagement in learning (see, Hujala et al., 2010; McClland et al., 2007).

Child-centred approach in research

The second aim was answered by using more child-centred methods in authentic and naturalistic learning settings. The basic idea was to increase children's agency and play-based approaches in the research process. Thus, in the first study, bear cards were

used for identifying emotional states in the situations that were chosen by researchers. In the second study, the children chose those situations by themselves. In addition, role-playing as ‘detectives for success and joy’ was employed, and the children collected data by using technologies, taking photos and videos. In both cases, children were encouraged to tell about their own ideas of positive and successful situations in formal and informal everyday contexts.

Regarding child-centred methods and agency in the research process, in our study, while the children did not always recognize the efficacious agency situations chosen by researchers, at some point, they found and *defined efficacious agency situations they themselves had chosen*. The bear cards were useful for identifying emotional states. By using both verbal and visual descriptions of emotions, we ensured that the children did not have any difficulties in labelling their emotions. The role of detective and the preceding detective course proved to be an excellent choice for two reasons. First, it is methodologically important that children adequately understand what the phenomenon is; e.g., what they are supposed to find and represent in the photo and video data collection. Playing detective obviously helped children to understand the idea behind the search for the phenomena of interest. Second, the playful approach motivated children to take their role seriously, which is in line with our earlier studies (Hyvönen, 2011; Hyvönen & Kangas, 2007). Because research findings show that children’s self-efficacy beliefs and self-regulation skills can develop early, even before school age (Aunola, 2001; Suchodoletz et al., 2013), child-centred methods should be applied in efficacy agency studies.

Given that children are inspiring and yet challenging to study (Gallagher & Gallagher, 2012), we conclude that research on young children needs to be designed in naturalistic and authentic learning environments and should include methods in which children are active agents. Creative approaches to study design and the use of multiple interactive methods are recommended (e.g., Darbyshire, 2005; Dalli & Te One, 2012; Elden, 2012; Spyrou, 2011), such as play and games, which are natural for children (Elden, 2011; Hyvönen, 2008; Hyvönen & Kangas,). These can include pictures, cards, drawings, role-playing, story telling, focal child and stimulated-recall interviews, and other child-centred data collection techniques. In the present research, children’s active participation, how they actively ‘do’ things, and how they choose joyful moments were stressed. Socio-dramatic methods and role-playing scenarios as presented here turned out to be very successful, although the child-centred paradigm is still relatively slow to develop as Morgan et al. (2002) has shown. For all the above-mentioned points, modern technological devices, such as the iPods that were used in the second case study, offer a handy approach for children to participate in data collecting.

As mentioned earlier, it is not the children, per se, who are the focus, but rather the wider processes (Pole et al., 2009) that constitute aspects of social, emotional, and cognitive behaviour. Ethically conducted child-perspective research (Dalli & Te One, 2012) is a meaningful way to explore and understand efficacious agency as a phenomenon among children. Theoretical and methodological grounding should be based on a shared understanding regarding the nature of the phenomenon. In our studies, the children participated in the chosen situations and explained them, which means that they did not analyse the data, but rather, their analysis was a part of the data. Their analysis and the episodes should be described accurately (McNamee & Seimour, 2013).

Limitations and future research

One limitation of the child-centred approach is that although the researchers' educational backgrounds are in early childhood, interactions and discussions with children are quite demanding. The entire research process requires a sensitive and flexible adult who responds to children's behaviour by listening and supporting their initiatives and spontaneous behaviour. Protecting children and their families from intrusive interventions is a main concern before one can begin collecting participatory data with children.

As our aim was to explore children's efficacious agency in everyday contexts in order to find new and innovative approaches to increasing children's agency during research processes and pedagogical practices, future research is also needed on co-creation and participation. Children are not merely passive consumers; rather, they are active members and creators of their own environment. Moreover, playful methods (Hyvönen, 2008; 2011) are natural for children when they take part in the research process; hence, more emphasis could be placed on play-based methods and play-based environments in developing research processes.

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