Education in the North

UNIVERSITY OF ABERDEEN

ARTICLE

Pathfinders or Explorers: Student teachers' ways of handling the challenges of classroom management in a simulation

Marcus Samuelsson, marcus.samuelsson@hv.se
Professor, University West, Sweden

DOI: https://doi.org/10.26203/rmy1-d092

To cite this article: SAMUELSSON, M., (2018) Pathfinders or Explorers: Student teachers' ways of handling the challenges of classroom management in a simulation. *Education in the North,* **25**(1-2), pp. 45-63.

Pathfinders or Explorers: Student teachers' ways of handling the challenges of classroom management in a simulation

Marcus Samuelsson, marcus.samuelsson@hv.se
Professor, University West Sweden

Abstract

Twenty-three Swedish student teachers volunteered to try to handle ordinary and difficult challenges of classroom management in a realistic, hypertext-based computer simulation. The point of departure for constructing this simulation was international classroom management research. The simulation offered the students an opportunity to choose from authoritarian, authoritative, democratic, and abdicated leadership styles as approaches to handling six teaching sequences. The results of the test showed that on the one hand, the students shifted between different leadership styles during the test, but on the other hand, that they used either a pathfinder or an explorative approach while doing so. Pathfinders acted as if they were searching for the shortest and fastest way through the simulation; while explorers looked into more or less all the options presented. Also shown was that none of them used the same leadership style to handle ordinary or difficult challenges. Almost all of the students used the authoritative and democratic leadership style, which could be understood as them (a) recognizing the greater validity of these two leadership styles, and therefore eliminating extremes like the authoritarian and abdicated ones, (b) selecting authoritative and democratic choices to reflect what they themselves experienced as pupils in school and as students during their practice teaching and (c) perceiving that these leadership styles are close to an ideal for the way they want to perform as teachers as soon as they start working.

Keywords: Simulated Provocations, Student Teachers, Classroom Management, Pathfinders, Explorers

Introduction

Thirty years ago, Brophy (1988) argued for a need to make some changes to teacher education programmes. One reason he put forward was that many student teachers entered their teacher training not only lacking knowledge about effective ways to act as leaders in the classroom, "but also harbouring mistaken attitudes and beliefs (misconceptions) that are likely to persist unless directly confronted and refuted" (Brophy, 1988, p. 13). He claimed that student teachers were consequently victims of two misconceptions about how to create an effective learning environment: (a) they had an idealistic notion – a romanticized idea – about human nature, and (b) they had an authoritarian notion – that respect for a teacher's authority and obedience to a teacher's demands are a necessity. Samuelsson and Colnerud (2015) found that Swedish student teachers thought classroom leadership could be understood as either an academic, knowledge-based model, as if there were always a certain way to act, or a dilemma-based model, as if each situation had more than one possible solution. Brophy also had ideas about reforming the training of student teachers as classroom managers using simulations, as earlier mentioned by Kersh (1965). Brophy argued that simulations could be a complement to student teaching and "provide additional instruction and practice on key strategies" (Brophy, 1988, p. 14). One way of doing this was discussed by Gredler (2004, p. 573), who argued that the goal with simulations was set to take "a bona fide role, address the issues, threats, or problems arising in the simulation, and experience the effects of one's decisions". Later on, Presnilla-Espada (2014) found that simulations used prior to vocational student teaching developed student teachers' pedagogical skills, provided that the teacher trainer used defined learning goals and didactic framing. Similar results have recently been presented by Arvola, Samuelsson, Nordvall and Ragnemalm (2018).

Jones (2006) demonstrated common shortcomings in teacher training programs including (a) a far too general and theoretical approach to classroom management and (b) student teachers reading about different management models without really testing them. Additionally, student teachers express the concern that they are unprepared (Koetsier and Wubbels, 1995) and unable to deal with more serious disruptions such as outbursts and violence (Colnerud, Karlsson, and Szklarski, 2008). While doing their school placements, during 20 weeks of an entire teacher training programme, Swedish student teachers come into closer contact with significant aspects of classroom management, that when they were taught about classroom management during a five-week, introductory teacher training course in classroom management, conflict management, and teaching ethics. This means they are given limited opportunities to develop their skills as classroom managers.

Offering the student teachers opportunity to learn more about classroom management within the scope of the teacher-training program is an important, but neglected task (Merrett and Wheldall, 1993; Jones, 2006). Most teacher-training programmes provide student teachers with limited opportunities to practice in realistic contexts and both test and develop their skills and abilities (Brophy, 1988; Wubbels, 2011). Samuelsson and Colnerud (2015) argued that a teacher

education programme should provide student teachers with the language and terminology for analysing a broad repertoire of classroom management dilemmas. In other words, there is still a great need for opportunities where student teachers can learn to anticipate their own reactions to challenges and develop their professional judgement in the same way as in the study of medicine (Nyström, Gustavsson, Edelbring, Hult and Abrandt Dahlgren, 2017) and master mariner (Sellberg, 2018), where the practice of real-world skills is logistically challenging, dangerous, or costly.

In light of the need for an improvement in classroom management training, as outlined above, the aim of this paper is to investigate student teachers' action strategies during a simulation test and while doing so, to search for answers to research questions such as:

RQ1. What sort of leadership styles were chosen by student teachers while handling common as well as difficult challenges to classroom management?

RQ2. How can their choice of leadership style during the test simulation be understood?

RQ3. To what extent did the student teachers examine the variation in the simulation?

The rationale behind this paper is found in Samuelsson and Colnerud (2015) who, similar to Brophy (1988), but in a different way, showed that student teachers had different perceptions about classroom management.

Classroom management

Classroom management could be understood as integrated skills (Nordenbo, Søgaard Larsen, Tifitkçi, Wendt and Østergård, 2008; Wubbels, 2011) focusing on leadership that enables all pupils to develop academically as well as socially and ethically. Good classroom management can in one way be likened to effective classroom management in which all pupils receive differentiated challenges or opportunities based on their individual circumstances in order to develop (Wubbels, Brekelmans, den Brok and van Tartwijk, 2006). International research on classroom management states that good classroom management is the result of conscious preventions and patient effort on the part of the teacher (Evertson and Weinstein, 2006; Emmer and Sabornie, 2014).

Teachers who are good classroom managers understand how important they are as leaders. They also understand that their leadership is based on respectful relations between them and the pupils as individuals (Lewis, Romi and Roache, 2012; Muntuoro and Lewis, 2014). Classroom management is referred to as a concern and interest in each pupil's situation (Woolfolk Hoy and Weinstein, 2006). Learning environments are easier to manage when they are characterized by mutual respect as well as stimulating activities. Such environments contain more support for learners, and a leader should, if necessary, alter the environment in order to

establish or maintain a good classroom climate (Westling Allodi, 2010; Mainhard, Brekelmans, den Brok and Wubbels 2011). To lead a class means creating and adjusting the climate so that academic, social and ethical development is made possible for each pupil (Evertson and Weinstein, 2006; Thapa, Cohen, Guffey and Higgins-D'Alessandro, 2013). Good leadership means that the teacher introduces, establishes and maintains a minimum of rules and procedures as part of a fair system that protects and respects the pupils (Evertson, 1989; Emmer and Sabornie, 2014). Teachers who work patiently to establish a structured classroom, with rules and procedures that apply to everyone, experience less disruptive behaviour. Pupils who feel involved get a sense of community, develop self-awareness, feel a commitment, and perform better (Jennings and Greenberg, 2009; Rubie-Davies, 2009). Pupils' involvement increases if they are self-motivated to try hard and succeed in doing tasks that relate to their lives, experience or future events (Lepage, Darling-Hammond, Akar, Gutierrez, Jenkins-Gunn, and Rosebrock, 2005). Expectations are not just about the pupils. Good classroom management means that the teacher leads and makes it clear what the pupils are expected to do (Beaman and Wheldall, 2000; Nordenbo, et al, 2008; Roache and Lewis, 2011; Emmer and Sabornie, 2014). The way teachers discipline pupils matters to the pupils, and teachers consequently need to consider how they treat and support each pupil's academic and social development. If discipline is used by teachers in a productive way, showing that the pupils' efforts and achievements are appreciated, the pupils will develop a self-awareness and involvement, which allows them to do their work better (Lewis, 2009; Lewis, 2011). Teachers also need to explain the rationale behind the discipline they use if they want to stimulate the pupils' sense of accountability (Epstein, Atkins, Cullinan, Kutash, and Weaver, 2008; Roache and Lewis, 2011).

Simulations in teacher education

An early, computer-based simulation for learning classroom management was constructed by Strang, Badt, and Kauffman (1987), who had someone convert the actions of the student teacher into codes recognised by the computer and read aloud the responses from the four pupils. Kervin, Ferry and Carrington (2006) found that a simulation had the potential to help student teachers develop their understanding of complex classroom situations linked to the development of literacy. Edman Stålbrandt (2013) showed that simulations created around dilemmas that support reflection created strong engagement and active participation in reflection among student teachers concerning the didactic dilemma. Dieker, Rodriguez, Lignugaris-Kraft, Hynes, and Hughes (2014) contend that a factor such as the ARC (action-review-cycle) helped student teachers repeatedly to undertake short virtual interactions using the simulation *TeachLivE* with five semi-virtual avatars. When student teachers were given the opportunity to reveal their own choices and actions, they were able to reflect on their practice. Simulations made it possible to practice the same type of situation as many times as was necessary (Straub, Dieker, Hynes, and Hughes, 2014).

Badiee and Kauffman (2014) evaluated *SimSchool* and found (a) that a relatively short period of training using a simulation increased students self-evaluated knowledge and skills, (b) that

students thus valued that they were given feedback and the opportunity to see the results, (c) that students desired simulations that they perceived to have a high level of fidelity and were realistic and (d) that user-friendliness developed students' abilities and skills. Their conclusion was that training using simulations may be a way to prepare student teachers for their forthcoming careers. Ragnemalm & Samuelsson (2016) found that a simulation could support vocational student teachers' as well as special needs teachers' understanding of classroom management and teach them to identify important aspects thereof. Similar to that Arvola, Samuelsson, Nordvall and Ragnemalm (2018) found that student teachers knowledge improvement, reflection and understanding, where supported via a simulation designed as radio theatre.

Given the research above, there is support for the statement that simulation technology can be useful for studying student teachers' action strategies.

Methodology

The hypertext simulation was constructed in a research project where researchers in educational science with specific knowledge of and experience in classroom management worked together with researchers in computer science who had specific knowledge of simulations in order to train student teachers in classroom management strategies.

The simulation was constructed with the support of variation theory (Bowden and Marton, 2004; Marton and Pang, 2013; Marton, 2015) on the assumption that learning a complex skill, which is composed of a number of abilities, is based on the same principles as learning more limited subjects. A skill is thus the ability to see and act in new situations in a purposeful and discerning way. This ability involves being able to differentiate significant aspects and focus on these stimuli in a certain situation. In the simulated classroom situations, student teachers were offered the opportunity to experiment with different styles of classroom management by responding to different sorts of virtual pupils. This testing of different solutions provided the opportunity, through variation, to investigate and discern important aspects of classroom situations. Accordingly, systematic variations on critical aspects challenged student teachers during the testing of the simulations. The research team decided to limit the experiment to two scripts about (a) starting the lesson and (b) transitioning during the lesson (Carlgren, 1997) as a learning objective for the simulation. They then started identifying critical aspects of the learning objective based on earlier research about classroom management, such as classroom climate, disciplinary interventions, expectations, relations, and rules, as shown in Table 1. Along with that, one of the researchers with specific knowledge of classroom management distinguished between ordinary and difficult challenges. Examples of commonly occurring challenges were disturbances such as pupils talking out of turn and hindering other pupils (Merrett and Wheldall, 1984; Samuelsson, 2014b). Examples of difficult, less commonly occurring challenges were provocations such as pupils' outbursts that were directed at the teacher.

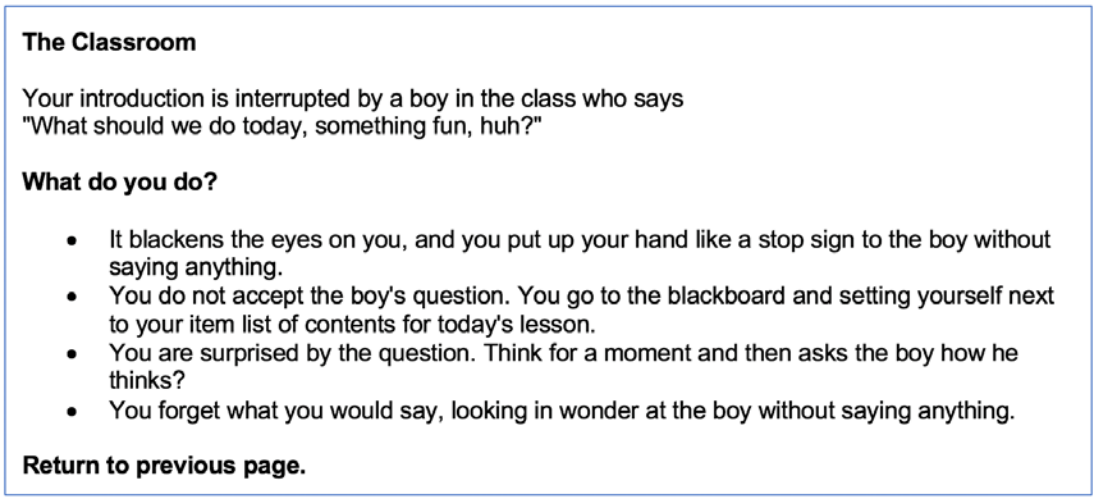
Dimensions of variation

In order to differentiate between aspects of classroom management, variation needed to be created. For this reason, Lewin, Lippitt and White's (1939) and Baumrind's (1971/1991) studies concerning social climate, leadership, and fostering styles were used as a model of leadership styles. The hypertext simulation was based upon different contextual and situational aspects that stood out as commonly occurring in scenario (a) the start of a lesson or (b) during a transition. In each script student teachers were presented with short descriptions and then asked to answer the question "What do you do?" by choosing one of four leadership styles (a) excessive, (b) authoritative, (c) democratic or (d) abdicated (Lewin, Lippitt and White, 1939; Baumrind, 1971/1991). They were supposed to orient themselves by pointing and clicking on one of four options of classroom management styles on the computer screen. Each option turned red when the computer mouse passed it. By choosing one option of leadership style the student teachers moved linearly through the simulation.

Table 1: *Dimensions of variations in classroom management applied on four leadership styles*

Dimension	Excessive	Authoritative	Democratic	Abdicated
Climate	Strict	Friendly	Understanding	Unclear
Discipline	Repressive	Trust	Confidence	Uncertain
Expectations	Keep reins tight	Set tasks	Inspire	Keep low profile
Relations	Distance	Considerately	Empathetically	Vague
Rules	Judge	Modelling	Agreements	Resign

The four leadership styles described in Table 1 differed with regard to how the teacher in the simulation dealt with different sorts of situations. These five aspects could be described as planned learning objectives (Lo, 2012). In that way, the student teachers had to identify and adopt an attitude towards how the teacher in the simulation would express the aspects of climate, discipline, expectations, relations and rules in verbal and non-verbal strategies. By using dimensions like these five, we attempted to exemplify variation in the scripts.



The Classroom

Your introduction is interrupted by a boy in the class who says
"What should we do today, something fun, huh?"

What do you do?

- It blackens the eyes on you, and you put up your hand like a stop sign to the boy without saying anything.
- You do not accept the boy's question. You go to the blackboard and setting yourself next to your item list of contents for today's lesson.
- You are surprised by the question. Think for a moment and then asks the boy how he thinks?
- You forget what you would say, looking in wonder at the boy without saying anything.

Return to previous page.

Figure 1: *Scenario 3 in the script starting a lesson, (translated from Swedish*)

The student teachers were exposed to predefined choices in the simulation, as shown in Figure 1. The choices represented different expressions of emotion, degrees of irritation, different locations in the classroom, different experiences of provocation, and different ways to conduct oneself both physically and mentally when relating to the pupils. All choices were followed by hidden reactions from a single pupil or a small group of pupils. Some of these reactions were carried out as dialogues between pupils and teachers. That meant that each student teacher had to adapt to different sorts of pupils regardless of the leadership style they tried and what choices they made after finding out how the simulated pupils reacted. The rationale behind this was to (a) challenge their thinking about aspects of classroom management as presented above (b) prompt them to present an argument for their choices (c) stimulate their active listening and get them to evaluate suggestions about reasonable ways to act in a certain situation and (d) stimulate their exploration of different actions in relation to reasonable consequences of the choice they made. This was supposed to lead to reflections and decision-making about which one of the four options the student teachers found most reasonable or appropriate to try. This option was built in to stimulate their exploration of not only the management styles, but also the different ways of conducting oneself within these four styles.

The rationale behind the *return to previous page* function was (a) to expose the student teachers to common incidents and critical situations (b) to prompt them to discover how they would act and the consequences of their actions (c) a way of teaching them to recognise both “minor” and “serious” problems, provocations or disruptions and (d) to equip them to adapt their actions as a result. This was also a motivation that contrasts to other sorts of methods, such as case studies, where you can’t “go back” and explore the same situation using different strategies to see the consequences of those decisions.

Introducing the simulation and conducting the simulation session

During a five-week introductory teacher training course about classroom management, conflict management, and teaching ethics all the student teachers who were taking the course were invited by the author to be part of the research project on simulation training for improving classroom management. At the same time, they were told that the simulation would not be part of the course and that the researchers were not part of the teaching staff for the course. Twenty-three of the student teachers volunteered to participate and try out the simulation by sending an e-mail to the research coordinator. They received a reply with a date, time and place for their individual simulation session. During the test simulation, each student teacher met individually with the research coordinator or the doctoral student that was assigned to the project. Each student teachers' tests of the simulation were recorded with the help of the computer's webcam, a programme called Silverback, so we could see all their leadership style choices as orange dots in the simulation and the computer microphone.

Ethical Considerations

The participants were informed about the Swedish Code of Research Ethics (CODEX, 2012) both in the information about the project and at the start of the test simulation. Furthermore, they were also informed that participation was voluntarily and that they were entitled to withdraw at any time without giving any explanation.

Analysis procedures

With the aid of a consistent comparative analysis (Fejes and Thornberg, 2009), it was possible to draw attention to similarities and differences between the 23 student teachers' simulation testing. The focus was placed on the script *Starting the lesson* that was completed by all 23 student teachers. I acquainted myself with the data, recordings and transcripts, searching for each student teacher's choice of leadership style. With the help of a coding system for content analysis (Denscombe, 2009) I constructed as an analytic scheme where the four leadership styles were separated scene by scene. A somewhat similar procedure had been used on other parts of the research group's material from the simulation project (Samuelsson, 2014a; Ragnemalm & Samuelsson, 2016). The analytical approach taken was a descriptive analysis (Bryman, 2012), calculating the percentage distribution of the choices of leadership styles made by the 23 student teachers. Another quantitative analysis had been done earlier on other parts of the data material (Arvola, Samuelsson, Nordvall and Ragnemalm, 2018).

Results

As part of a first descriptive analysis of the videos and transcripts of the student teachers' (n=23) simulation test, it was discovered that in all they made 171 choices of leadership style. It was also revealed that none of the student teachers used the same leadership style for all six scenes.

Table 2: *Student teachers' choice of leadership styles during simulation try-out*

Leadership style	Number of times
Excessive	13
Authoritative	85
Democratic	63
Abdicated	10

As shown in the table above, 50% of the time the student teachers chose the authoritative leadership style. 37% of the time they chose the democratic leadership style. 7% of the time they chose the excessive leadership style and 6% of the time they chose the abdicated leadership style.

As part a second inductive qualitative analysis, a pattern was found indicating that the 23 student teachers who were exposed to the simulation content acted as if they were (a) pathfinders or (b) explorers inspired by Bartle's (1996) simple classification of gamers. Nine of the 23 student teachers acted as pathfinders while 14 acted as explorers. Looking at *pathfinders'* simulation sessions it seemed as if they were searching for the shortest way through the simulation, as shown in Figure 2. While doing so they missed the greater part of the variation on their way from start to goal.

Figure 2: *Description of a pathfinder approach*

Student	Scene 1	Scene 2	Scene 3	Scene 4	Scene 5	Scene 6	Time	Choices
X	2	2	3	2	2	1	13.23	6

The figure shows how an average student teacher as a pathfinder tried out the simulation as if they were searching for a short, direct way through it. That didn't mean that they always selected the same alternative from among the leadership styles. Even so, they always stuck to the chosen option of leadership style despite what sort of pupil reaction followed. All 23 student teachers shifted between at least two leadership styles. Eleven of the 23 student teachers shifted between two styles, eight of the 23 shifted between three leadership styles and four of the 23 student teachers shifted between all four leadership styles. Looking at *explorers'* simulation sessions it seemed as if they looked into the options in the simulation, as shown in Figure 3. While doing so they experienced a lot of the variation when trying to figure out reasonable choices of classroom management.

Figure 3: *Description of an explorative approach*

Student	Scene 1	Scene 2	Scene 3	Scene 4	Scene 5	Scene 6	Time	Choices
Y	2	2↲3 4	2↲3 ↲ 3	2 ↲ 3	2↲3 ↲ 2	2 ↲ 1	19.53	21

The back arrow in Figure 3, in Scenes 2, 3 and 5, explains how this student teacher tried more than one leadership style in that scene. The last number illustrates the leadership style they finally adopted before moving on to the next scene. The back arrows in Scenes 3, 4, 5 and 6 illustrate how these student teachers returned from Scene 6 to Scene 2 before making new choices.

The 14 student teachers that acted as *explorers* investigated different leadership styles and tried out two or more alternatives. Their ways of conducting themselves could be separated into (a) a reduced exploration and (b) an extended exploration. Using a reduced exploration meant investigating two options, which was done by three of the 14 student teachers. Using an extended exploration meant investigating three or four options. Eight of the 14 student teachers investigated three options, and three of the 14 student teachers investigated all four options. Focusing on the explorative style also showed that these student teachers made 29 choices in all. Seventeen choices were made to the closest option of leadership style, for example leadership style authoritative or abdicated if they first tried the democratic leadership style, as shown in Table 1. Eight choices were made for the second closest option of leadership style and four were made for the least close option of leadership style, compare Table 1.

Comparing *pathfinders* and *explorers'* ways of taking part in the simulation showed that they spent varying amounts of time on their simulation. The average time for the *pathfinders* was 13.23 compared to 19.53 for the *explorers*. The number of choices also differed between them from the fewest possible – six choices – among *pathfinders* to an average of 21 choices among *explorers*. Despite the above-mentioned differences between *pathfinders* and *explorers*, the analysis also showed that the student teachers shifted between authoritative and democratic leadership styles when handling ordinary challenges such as disturbances. It was also found that the student teachers used the authoritative leadership style when handling difficult challenges such as provocations.

Discussion

The aim of this paper was to investigate student teachers' action strategies during a test simulation, thus searching for answers to two research questions: (a) What sort of leadership styles were chosen by student teachers handling common as well as difficult challenges to classroom management? (b) How could the choice of leadership style made by the student

teachers during the test simulation be understood? and (c) To what extent did the student teachers examine the variation in the simulation?

As shown in the results, the 23 student teachers' choices of leadership styles for handling ordinary and difficult challenges during their individual test simulation were the authoritative and the democratic leadership styles (Lewin, Lippitt and White, 1939; Baumrind, 1971/1991). These results could on the one hand be understood as students trying out different options while striving for a friendly and understanding classroom climate (Westling Allodi, 2010; Mainhard, et al, 2011) based on trust and confidence (Epstein, et al, 2008; Roache and Lewis, 2011), where expectations were made known through setting tasks and inspiring the pupils, (Beaman and Wheldall, 2000; Nordenbo, et al, 2008), relations were seen as considerate and empathetic (Lewis, Romi and Roache, 2012; Muntuoro and Lewis, 2014), and rules were established through the use of modelling and agreements (Evertson, 1989; Woolfolk Hoy and Weinstein, 2006). Doing so also meant that these student teachers rejected the extreme leadership styles labelled excessive and abdicated, which they probably were able to identify, since earlier research has shown that student teachers found this particular simulation to be realistic (Nordvall, Arvola and Samuelsson, 2014). This was perhaps because it had a non-normative point of view constructed from many different areas of classroom management research. This could be understood as their harbouring neither of the two misconceptions about an effective learning environment – neither the idealistic notion nor the authoritarian notion that Brophy (1998) claimed student teachers had.

The results shown above, about student teachers' choice of leadership styles, could on the other hand perhaps reflect a leadership style that they experienced as pupils during primary and secondary school, as well as a leadership style that they had experienced under the guidance of skilled teachers during their internship or practicum. It could also reflect the literature about classroom management that the student teachers had read during their teacher training programme which, according to some of them (Samuelsson, 2014a) idealized the authoritative leadership style. It could perhaps also be an idealization of the way they would like to act as future teachers; they may have thought that researchers would like them to adopt these leadership styles, even though we informed them prior to the simulation that it was an opportunity for them to examine their own notions about classroom management based upon earlier research (Evertson and Weinstein, 2006; Emmer and Sabornie, 2014) rather than normative statements.

The tested simulation seemed, as earlier shown by Kervin, Ferry and Carrington, 2006; Ragnemalm and Samuelsson, 2016; Arvola, Samuelsson, Nordvall and Ragnemalm, 2018), to have the potential to help these student teachers develop their understanding of complex classroom situations – in this case, significant aspects of classroom management and a specific perspective on leadership styles. This statement is also supported by the fact that these student

teachers seemed to make contemplated choices of leadership styles (Wubbels, 2011) during their test simulation. Simulation practice seems to add something else to student teachers' training over and above traditional forms of education such as seminars and lectures. Simulation could therefore be a useful complement in training student teachers to reflect and understand teaching aspects (Edman Stålbrandt, 2013; Presnilla-Espada, 2014; Straub, et al., 2014; Ragnemalm and Samuelsson, 2016; Arvola, Samuelsson, Nordvall and Ragnemalm, 2018).

Despite the promising results of simulation as a way to increase student teachers' awareness of classroom management and leadership styles, problems were also identified. Is it possible that the fact that nine out of 23 student teachers did not explore the alternatives in the simulation means that they missed a lot of the variations while finding their chosen path? Could this be because they had adopted a naive perception regarding the need for classroom management mentioned by Brophy (1988) and thereby risked entering their future profession with a false sense of security? (Samuelsson and Colnerud, 2015). In other words, what did pathfinders, as compared with explorers, learn about classroom management and the five planned learning objectives (Lo, 2012) – climate, discipline, expectations, relations, and rules – from taking part in the test simulation? Explorer's use of the back arrow shows that they explored options within different scenes as well as in the scripts, which means that they took advantage of the options presented and probably learned more about the effects of their decisions (Gredler, 2004). That could mean that they will enter their future profession with an identified insecurity (Samuelsson and Colnerud, 2015).

Another dilemma in relation to earlier findings about the use of simulations in teacher education was the one that Straub, et al. (2014) pointed out: student teachers had an opportunity to practice the same situation as many times as possible, but none of these student teachers tried the simulation more than once. Even if Badiee and Kauffman (2014) found that a relatively short period of training using a simulation increased students' self-evaluated knowledge and skills, one can't be sure about the effect of the short time that these student teachers spent trying the simulation. One way of being able to say something about that would be to interview these 23 student teachers who now actually, and hopefully still, work as teachers.

Conclusions

One important contribution of this research project is the insight that if there is a distinct correlation between defined learning goals and didactical framing, simulations such as SIMPROV can be used by student teachers for individual and paired testing of their reflections on classroom management. This was mentioned earlier by (Presnilla-Espada, 2014) and more recently by Arvola, Samuelsson, Nordvall and Ragnemalm (2018). A second critical aspect for the success of simulator training is the instructor's role. Besides the didactical framing and simulation tests, this also concerns the debriefing part of the simulation practice (Sellberg, 2018). A third critical aspect concerns student teachers' willingness to spend time on simulation

training (Straub, et al., 2014). This sort of research exemplifies the considerations needed to be made when adopting simulations in teacher training courses. Even so, simulation training such as the SIMPROV could be useful since teacher training programmes still seem to fail to equip student teachers for managing difficult classroom situations (Koetsier and Wubbels, 1995; Jones, 2006; Wubbels, 2011) and many novice teachers leave their teaching career after only a few years in the profession for the very same reason (Samuelsson and Colnerud, 2015) because they are ill prepared.

Acknowledgements

This research has been supported by the Swedish Research Council [reference number 721-2011-4741]

References

ARVOLA, M., SAMUELSSON, M., NORDVALL, M., and RAGNEMALM, E. R. (2018). Simulated Provocations: A Hypermedia Radio Theatre for Reflection on Classroom Management. *Simulation and Gaming*.

BADIEE, F., and KAUFMAN, D. (2014). Effectiveness of an Online Simulation for Teacher Education. *Journal of Technology & Teacher Education*, **22**(2), pp.167-186.

BARTLE, R., (1996). Hearts, clubs, diamonds, spades: Players who suit MUD. *Journal of MUD research*, **1**(1), pp. 1-19.

BAUMRIND, D., (1971/1991). Current patterns of parental authority. *Developmental Psychology Monographs* 4, pp.1–103.

BEAMAN, R., and WHELDALL, K. (2000). Teachers' Use of Approval and Disapproval in the Classroom. *Educational Psychology,* **20**(4)*,* pp.431-446.

BIESTA, G., (2009). Values and ideals in teachers' professional judgement. In: S. Gewirtz, P. Mahony, I, Hextall, and A. Cribb, eds. *Changing Teacher Professionalism. International trends, challenges and ways forward.* London: Routledge. pp.184-193.

BOWDEN, J., and MARTON, F., (2004). *The University of learning.* London: Routledge.

BROPHY, J., (1988). Educating teachers about managing classrooms and students. *Teaching and Teacher Education,* **4**(1)*,* pp.1-18.

BRYMAN, A., (2012). *Social Research Methods.* Oxford: Oxford University Press.

CARLGREN, I., (1997). Klassrummet som social praktik och meningskonstituerande kultur [The Classroom as a social practice and culture that constitutes meaning]. *Nordisk pedagogik,* **17**(1)*,* pp.8-27.

CODEX. (2012-04-01). *Regler och riktlinjer för forskning. [Rules and guidelines for research].* Retrieved from the Swedish Research Council's website: http://www.codex.vr.se/forskninghumsam.shtml

COLNERUD, G., KARLSSON, I., and SZKLARSKI, A., (2008). *Alltid redo. Lärarstudenters handlingsberedskap för varierande uppgifter i klassrummet [Always Ready. Student Teachers'*

Readiness to Act with respect to Varied Tasks in the Classroom]. Linköping: Linköping University.

DENSCOMBE, M., (2009). *Forskningshandboken – för småskaliga forskningsprojekt inom samhällsvetenskaperna.* [The Good Research Gudie – for small-scale research projects]. Studentlitteratur: Lund.

DIEKER, L. A., RODRIQUEZ, J. A., LIGNUGARIS-KRAFT, B., HYNES, M. C., AND HUGHES, C. E. (2014). The Potential of Simulated Environments in Teacher Education. Current and Future Possibilities. *Teacher Education and Special Education,* **37**(1)*,* pp.21-33.

EDMAN STÅLBRANDT, E., (2013). *Simulerade skoldilemman – redskap för utveckling av reflektionsförmåga? [The Simulated School Dilemma – A Tool for the Development of the Ability to Reflect?].* Turku: Åbo Akademi University.

EPSTEIN, M., ATKINS, M., CULLINAN, D., KUTASH, K., and WEAVER, R. (2008). *Reducing Behaviour Problems in the Elementary School Classroom: A Practice Guide.* Washington DC: National Center for Education Evaluation and Regional Assistance.

EVERTSON, C. M., (1989). Classroom Management. In: H. J. Wahlberg and G. D. Haertel, eds. *Psychology and educational practice.* Berkley: McCutchan. pp.251-273.

EVERTSON, C. M., and WEINSTEIN, C. S., (2006). *Handbook of Classroom Management. Research, Practice and Contemporary Issues.* New Jersey: Lawrence Erlbaum.

Emmer, E. T., and Sabornie, E. J. (2014). *Handbook of Classroom Management.* New York and London: Routledge.

FEJES, A., and THORNBERG, R. (2009). *Handbook in Qualitative analysis. (Handbok i kvalitativ analys*). Stockholm: Liber.

GREDLER, M. E. (2004). *Games and simulations and their relationships to learning*. In: D. H. Jonassen, ed. *Handbook of research for educational communications and technology.* Mahwah, NJ: Lawrence Erlbaum Associates. pp.571-82.

JENNINGS, P. A., and GREENBERG, M. T. (2009). The Prosocial Classroom: Teacher Social and Emotional Competence in Relation to Students and Classroom Outcomes. *Review of Educational Research,* **79**(1)*,* pp.491-525.

JONES, V. (2006). How do teachers learn to be effective classroom managers? In: C. M. Evertson and C. S. Weinstein, eds. *Handbook of Classroom Management. Research, Practice and Contemporary Issues*. New Jersey: Lawrence Erlbaum. pp. 887-907.

KERVIN, L. K., FERRY, B., and CARRINGTON, L. (2006). ClassSim: Preparing tomorrows teachers for classroom reality. In: C. Crawford, C. Carlsen, K. McFerrin, J. Price, R. Weber, and D. Willis, eds. *Society for Information Technology & Teacher Education Conference*. Chesapeake VA, USA: Association for the Advancement of Computing in Education. pp.3204-3211.

KERSH, B.Y., (1965). *Classroom simulation: Further studies on dimensions of realism* (Final Report Project Number 5-0848). Monmouth, OR: Teaching Research Division of the Oregon State System of Higher Education.

KOETSIER, C.P., and WUBBELS, J.T., (1995). Bridging the gap between initial teacher training and teacher induction. *Journal of Education for Teaching,* **21**(3), pp.333–345.

KOUNIN, J. S. (1970). *Discipline and group management in classrooms.* New York: Holt, Rinehart and Winston.

LEPAGE, P., DARLING-HAMMOND, L., AKAR, H., GUTIERREZ, C., JENKINS-GUNN, E., and ROSEBROCK, K. (2005). Classroom Management. In: L. Darling-Hammond and J. Bransford, eds. *Preparing teachers for a changing world: What teachers should learn and be able to do.* San Francisco: Jossey-Bass. pp.327-357.

LEWIN, K., LIPPIT, R., and WHITE, P., (1939). Patterns of Aggressive Behaviour in Experimentally Created 'Social Climates'. *Journal of School Psychology,* **10**(2), 269-308.

LEWIS, R., (2001). Classroom discipline and students' responsibility: The students' view. *Teaching and Teacher Education,* **17**(3)*,* pp.307-319.

LEWIS, R., (2009). *Understanding Pupil Behaviour: Classroom management techniques for teachers*. London and New York: Routledge.

LEWIS, R., ROMI, S., KATZ, Y. J., and XING, Q. (2008). Students' reaction to classroom discipline in Australia, Israel and China. *Teaching and Teacher Education,* **24**(3)*,* 715-724.

LEWIS, R., ROMI, S., and ROACHE, J. (2012). Excluding students from classroom: Teacher techniques that promote student responsibility. *Teaching and Teacher Education,* **28**(6)*,* 870-878.

LO, M. L., (2012). *Variation theory and the improvement of teaching.* Göteborg: Göteborgs universitet.

MARTON, F., (2015). *Necessary conditions of learning.* London: Routledge.

MARTON, F., and PANG, M.F., (2013). Meanings are acquired from experiencing differences against a background of sameness, rather than from experiencing sameness against a background of difference: Putting a conjecture to the test by embedding it in a pedagogical tool. *Frontline Learning Research,* **1***,* 24-41.

MAINHARD, M. T., BREKELMANS, M., den BROK, P., and WUBBELS, T. (2011). The development of the classroom social climate during the first months of the school year. *Contemporary Educational Psychology,* **36**(3)*,* pp.190-200.

MERRETT, F., and WHELDALL, K. (1984). Classroom behaviour problems which junior high school teachers find most troublesome. *Educational Studies,* **10**(2), pp.87-92.

MERRETT, F., and WHELDALL, K., (1993). How do Teachers Learn to Manage Classroom Behaviour? A study of teachers' opinions about their initial training with special reference to classroom behaviour management. *Educational Studies,* **19**(1), pp.91-106.

MONTUORO, P., and LEWIS, R., (2014). Student Perceptions of Misbehaviour and Classroom Management. In: E. T. Emmer and E. J. Sabornie, eds. *Handbook of Classroom Management.* New York and London: Routledge. pp.344-362.

NORDENBO, S-E., SØGAARD LARSEN, M., TIFITKÇI, N., WENDT, R. E., and ØSTERGARD, S. (2008). *Lærerkompetencer og elevers læring i førskole og skole [*Teacher Competencies and Pupil Achievement in Preschool and School*].* Copenhagen: Dansk Clearinghouse for Uddanelseforskning.

NORDVALL, M., ARVOLA, M., and SAMUELSSON, M., (2014). Exploring Simulated Provocations: Supporting Pre-service Teachers' Reflection on Classroom Management. In P. Zaphiris, and A. Ioannou, eds. *Learning and Collaboration Technologies. Technology-Rich Environments for Learning and Collaboration. Lecture Notes in Computer Science* Volume 8524, Springer. pp.182-193.

NYSTRÖM, S., GUSTAVSSON, J., EDELBRING, S., HULT, H., and ABRANDT DAHLGREN, M. (2017). Continuing professional development: pedagogical practices of interprofessional simulation in health care. *Studies in continuing education,* **39**(3), pp.303-319.

PRESNILLA-ESPADA, J., (2014). An Exploratory Study on Simulated Teaching as Experienced by Education Students. *Universal Journal of Educational Research,* **2**(1), pp.51-63.

RAGNEMALM, E. L., and SAMUELSSON, M., (2016). Simulating variation in order to learn classroom management. *Educational Media International,* **53**(4), pp.274-284.

ROACHE, J. E., and LEWIS, R., (2011). The carrot, the stick, or the relationship: what are the effective disciplinary strategies? *European Journal of Teacher Education,* **34**(2), pp.233-248.

RUBBIE-DAVIES, C. (2009). Teacher expectation and labelling. In: L. J. Saha and G. Dworkin, eds. *International Handbook of Research on Teachers and Teaching.* New York: Springer. pp.695-710.

SAMUELSSON, M., (2014a). Pre-service teachers' conceptions about and development of classroom management skills by using a simulation. Paper presented at the Australian Association for Researcher in Education (AARE) conference, Brisbane, Australia.

SAMUELSSON, M., (2014b). Teacher's experience of troublesome classroom behaviour. (Lärares upplevelse av besvärande elevbeteende). *Venue,* **3**(2), pp.1-5.

SAMUELSSON, M., and COLNERUD, G., (2015). Student teachers' perceptions regarding the challenges of leadership. In D. Garbett and A. Ovens, eds. *Teaching for tomorrow today* Auckland: International Association of Teachers and Teaching (ISATT) and Edify Ltd. pp. 312-320.

SELLBERG, C., (2018). Training to become a master mariner in a simulator-based environment: The instructors' contribution to professional learning. Göteborg: Göteborgs University.

STOUGH, L. M., and MONTAGUE, M. L. (2015). How teachers learn to be classroom managers. In E. T. Emmer and E. J. Saborine, eds. *Handbook of classroom management, 2nd Edition.* New York and London: Routledge. pp.446-458.

STRANG, H., BADT, K., and KAUFFMAN, J., (1987). Microcomputer-based simulations for training fundamental teaching skills. *Journal of Teacher Education,* **38**, pp.20-26.

THAPA, A., COHEN, J., GUFFEY, S., and HIGGINS-D'ALESSANDRO, A. (2013). A review of school climate research. *Review of Educational Research,* **83**(3)*,* pp.357-385.

WOOLFOLK HOY, A. and WEINSTEIN, C. S. (2006). Student and Teacher Perspective on Classroom Management. In: C. M. Evertson and C. S. Weinstein, eds. *Handbook of Classroom*

Management. Research, Practice and Contemporary Issues. New Jersey: Lawrence Erlbaum. pp.181-219.

WESTLING ALLOUDI, M. (2010). Goals and values in school: a model developed for describing, evaluating and changing the social climate of learning environments. *School Psychology of Education,* **13**(2)*,* pp.207-235.

WUBBELS, T., BREKELMANS, M., den BROK, P., van TARTWIJK, J. (2006). An interpersonal perspective on classroom management in secondary classrooms in the Netherlands. In: C. M. Evertson and C. S. Weinstein, eds. *Handbook of Classroom Management: Research, Practice and Contemporary Issues.* New Jersey: Lawrence Erlbaum Associates. pp.1161-1191.

WUBBELS, T. (2011). An international perspective on classroom management: what should prospective teachers learn? *Teaching Education,* **22**(2), pp.113-131.