Learners providing feedback on teaching: pre-service teachers' perceptions of a teacher assessment arrangement

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Abstract

Teaching practice periods are intended to prepare pre-service teachers for their professional lives as teachers. With this in mind, we have developed a tool for gathering feedback from learners taught by teachers-in-training to provide these pre-service teachers with feedback that contributes to their professional development. This study presents findings on the degree to which pre-service teachers perceived the feedback from learners to be useful. Using structural equation modelling, we also explored the associations between characteristics of the pre-service teachers and the perceived usefulness of the assessment process. We conclude that teacher training could capitalize on this underutilized form of feedback.

Keywords: teacher education, assessment, self-efficacy, motivation, learner feedback

Introduction

The future of a nation depends upon the education of its children, and the quality of that education depends to a large extent on the preparation of its teachers. High-quality teaching is acknowledged to be the most important factor influencing attainment among learners (Rivkin, Hanushek & Kain, 2005; Hanushek & Woessmann, 2015). This recognition has led to a greater focus on professionalism in teacher training and schools (Elliot, 1991; Furlong, Cochran-Smith & Brennan, 2013; Sachs, 2016). Thus, attending to the pre-service training of teachers is of utmost importance in safeguarding the future of the nation inherent in its schoolchildren. The *raison d'être* of teacher training is that pre-service teachers should be prepared for a working life as teachers; it is intended to provide the initial basis for continuous learning and development in the teaching profession (Christophersen, Elstad, Solhaug & Turmo, 2016). Yet, teacher training has been widely criticized as falling short of these aspirations (OECD, 2014). The value added by any teacher training program is premised on pre-service teachers' learning to teach, which depends in part on the quality of mentored practicum experiences as well as academic courses (Christophersen, Elstad, Solhaug & Turmo, 2015a).

The teacher training period can be overwhelming for pre-service teachers (Calderhead, 1991). Consequently, there is a tendency for these teachers-in-training to be overly concerned with their own performances and less so with the learners in their classes (Caspersen & Raaen, 2014). It is of great importance at this early stage of their careers to help pre-service teachers establish productive, learner-oriented practices. This development can be usefully facilitated through ongoing assessment and feedback, as is shown in similar fields such as the health care professions (Johnson, Keating, Boud, Dalton, Kiegaldie, Hay, McGrath, McKenzie, Balakrishnan R. Nair, Nestel, Palermo & Molloy, 2016) and higher education (Gravestock & Gregor-Greenleaf, 2008). One promising means to improve teacher training

and performance that have been found to make a difference is to enhance the amount and quality of the feedback pre-service teachers receive during their training. These approaches, however, have rarely involved feedback from the learners taught by the teachers-in-training. Feedback from learners, enhanced by mentoring, is meant to assist pre-service teachers to move beyond an anxious focus on their own performance and to shift their focus to learners. Programs of teacher education might capitalize on this kind of feedback which represents an underused and potentially valuable resource. The purpose of this study is to examine learner feedback as a useful element of teacher training. An important question, addressed in this study, is the degree to which pre-service teachers perceive this kind of feedback as useful, and whether characteristics of preservice teachers influence the degree to which they value it. We chose to examine the preservice teacher characteristics of self-efficacy beliefs, achievement goal orientation, and stress as potential drivers of their acceptance and valuing of learner feedback.

Theoretical Framework

In this section, we explain our theoretical framework, in which we splice together four distinct strands, namely theories concerning assessments of teachers by learners in their classrooms, teacher self-efficacy, achievement goal motivation, and occupational stress. These strands represent concepts that are known to have potential impact on teachers' professional lives in schools, but have not yet been examined in concert. In the following sections, we will describe the framework in more depth. The emphasis of this article is the formative role of learner feedback. We have chosen a parsimonious approach when constructing our framework, leaving out potentially relevant issues, such as relationships between contextual, social and economic dimensions of schooling.

Learner Feedback

Feedback from learners is seen as a powerful resource for improving performance. Teacher assessments in schools are central to many international reform efforts, and a number of countries have implemented various assessments of teachers' educational practices since the start of the millennium (Isoré, 2009). Assessments by learners in the classroom can contribute to teachers' self-assessment and reflection upon their teaching practices, and thereby promote growth and learning (Darling-Hammond, 2013; Darling-Hammond, Wise, & Pease, 1983; Day, Flores, & Viana, 2007). Our earlier work (Elstad, Lejonberg & Christophersen, 2017; 2015) has found that experienced teachers in Norway find anonymous feedback from learners to be useful in their development process. For a system to have a developmental effect, Delvaux et al. (2013) find that the system should be seen as transparent in terms of clear criteria and level of fairness, and that the teacher (or pre-service teacher) has a positive relationship with the assessors – either the teacher's learners, peers, or leaders in the school organization. We have also presented evidence suggesting that experienced teachers' interpretation of the intentions reflected in assessment systems is associated with their perceptions of how useful they are, and with assessment-related stress (Elstad et al., 2017). It is rare, however, to have learners' experiences and assessments made by learners in pre-service teachers' classrooms used as empirical data to assess areas for pre-service teachers to emphasize, and to improve their teaching within the practicum (Tillema, 2009; Lejonberg et al., 2016).

The reasons for introducing feedback from learners into teacher education are therefore twofold: to contribute to the professional development of pre-service teachers and to prepare them for their professional lives in schools (Darling-Hammond & Lieberman, 2012). The lack of systematically gathered feedback from learners in the classroom is peculiar, because feedback is widely acknowledged to be a critical scaffolding element in continuing

professional development. By using learner feedback, pre-service teachers also get used to receiving, analyzing, and using feedback data to improve performance on multiple levels. This study therefore explores pre-service teachers' perceptions of learner feedback by investigating how self-efficacy, motivation, and stress are associated with pre-service teachers' perceptions of the usefulness of assessments by learners. Pre-service teachers' perceptions are important because they influence behavior (Delvaux et al., 2013). A teacher who does not perceive feedback from learners as useful will hardly gather or use such feedback to improve teaching. If future teachers come to value this type of feedback, however, it is more likely that they will be both willing and able to use information from feedback formatively throughout their careers. Realizing the potential for both teacher training and future professional development necessitates an improved understanding of how feedback could be used in teacher training.

It is important to note that, in the context of this study, learner feedback is considered only for formative purposes, as there would be a number of concerns that would need to be addressed, were learner perceptions to be included in high-stakes summative evaluations of the pre-service teacher. These would include such issues as whether these learners can be counted on to be fair, the age of learners at which including their feedback would be practical, and the need to align the readability of the assessments with learner comprehension levels (Lejonberg, Eriksen, Elstad & Christophersen, 2016). In our study, we define formative assessment in line with Black and Wiliam (2009), who presented a synthesis of several earlier definitions:

> Practice in a classroom is formative to the extent that evidence about student achievement is elicited, interpreted, and used by teachers, learners, or their peers, to make decisions about the next steps in instruction that are likely to be better, or better founded, than the decisions they would have taken in the absence of the evidence that was elicited (2009, p. 9).

This definition emphasizes the importance of gathering information about student achievement, although we also include student perceptions of the learning environment. This information can improve decision making about the next steps of teaching. Introducing systems for developmental use of such information can help improve both teaching and conditions for learning in classrooms.

Teacher Self-Efficacy

Bandura (1977) introduced the concept of self-efficacy, understood as a self-assessment of a person's proficiencies to attain a desired level of performance in a particular field of endeavor. He defined self-efficacy as "people's beliefs about their capacities to produce designated levels of performance and exercise influence over events that affect their lives" (Bandura, 1994, p. 71). Bandura asserted that people's belief in their abilities was a powerful driving mechanism influencing the motivation to act, the effort put forth in the endeavor and persistence in the face of setbacks. During their preparation to teach, pre-service teachers not only hone their content knowledge and develop pedagogical skills, but also form beliefs about themselves and their capacity to bring about learning and growth for all students, even those who may be challenging or unmotivated. These self-efficacy beliefs, in turn, influence their motivation, that is, the effort they invest in teaching, their persistence with students who struggle, and their resilience when things do not go smoothly. These beliefs are shaped simultaneously to when pre-service teachers reinforce and consolidate their teaching repertoire (Greeno, 1987; Tschannen-Moran & Hoy, 2001).

Self-efficacy beliefs reflect pre-service teachers' perceptions of their teaching competence; if these beliefs are positive, future performance is more likely to show increasing proficiency (Tschannen-Moran & Hoy, 2007). Pre-service teachers with a low sense of self-efficacy may lack the initiative or motivation needed to improve or may leave the field altogether (Elstad & Christophersen, 2017). Thus, self-efficacy beliefs can become self-

fulfilling prophecies with strong performance leading to strong effort, while weak performance may lead to weak effort and persistence. Moreover, once established early in their teaching career, these beliefs tend to become fixed for the course of their teaching career unless teachers experience some kind of shock (good or bad) that causes them to reassess their capabilities (Bandura, 1997; Tschannen-Moran & Hoy, 2007). Therefore, it is important to provide tools for developing and improving teaching at this early stage. A system of feedback from learners can potentially help pre-service teachers to take into account learners' needs at an early stage, accelerating professional growth due to positive experiences with formative feedback from learners.

Scholars have investigated how these self-beliefs are shaped among pre-service teachers (Albion, 2001; Martins, Costa, & Onofre, 2015; Pendergast, Garvis, & Keogh, 2011). Results largely confirm Bandura's contention that self-efficacy beliefs have four primary sources, including mastery experiences, vicarious experiences or modeling by others, verbal persuasion or feedback, and physiological arousal. Mastery experiences have been found to be among the most potent sources of self-efficacy (Bandura, 1997; Hoy & Spero, 2005, Tschannen-Moran & Hoy, 2007). For pre-service teachers, mastery experiences consist of practical teaching experiences with learners (Tschannen-Moran & Hoy, 2007). During their first attempts at teaching during their practice placements, some pre-service teachers may become discouraged and have low feelings of mastery. The modeling of their cooperating teacher may support their developing sense of competence as they begin to see themselves filling the same role as the teacher (Albion, 2001).

Since novice teachers have limited experience to draw upon, however, other sources, such as verbal persuasion or feedback, have been found to be important. Clark and Newberry (2019) found that verbal persuasion from teacher educators and verbal persuasion from cooperating teachers contributed to pre-service teachers' self-efficacy, in addition to mastery

experiences and modeling by their cooperating teacher. These researchers did not, however, examine student feedback as a source of verbal persuasion contributing to self-efficacy beliefs. Verbal persuasion from mentors may elaborate a constructive response to learner feedback. Feedback from learners in a formative framework can be seen as a form of verbal persuasion at a time when chances are best for making a difference – in the beginning of the career (Tschannen-Moran & Hoy, 2007). So, feedback from learners is a potential source of information aimed at strengthening self-efficacy beliefs. If pre-service teachers experience and value the feedback from learners as useful for improving their teaching practice, they may continue to perceive it as useful as a source for motivation throughout their careers.

Teacher self-efficacy is a multi-dimensional construct, structured around various aspects of the complex work of teaching (Tschannen-Moran & Hoy, 2001). After analyzing the central tasks in pre-service teachers' practicum placements, we identified classroom management and instructional techniques to be two key elements. We hypothesize, first, that self-efficacy for classroom management is positively associated with the perceived usefulness of feedback from learners (Hypothesis 1). Second, we hypothesize that self-efficacy for instructional techniques is positively associated with the perceived usefulness of the feedback (Hypothesis 2).

Achievement goal motivation

Achievement goal motivation is a form of motivation that originates in the need to be respected by others, to be regarded as a skilled person, and, more generally, to be valued by one's social environment (Pintrich, 2000; Sommet & Elliot, 2017). Feelings about how one scores on high-stakes aspects of education are closely connected to achievement goal motivation (Wolters, 2004). Several authors have underlined the importance of communicating "developmental" purposes to pre-service teachers, as opposed to purposes of "control" if feedback from learners is to have beneficial effects (Lillejord et al., 2014).

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Although developmental purposes for using learner feedback have been highlighted, our results from an earlier study in our context have indicated that a considerable number of respondents perceived the intention of building systems for learner feedback to be to control teachers (Elstad et al., 2017). Even with an instrument developed for formative purposes and which is not used as part of the pass/fail evaluation of the practicum period, the pre-service teachers are situated in a high-stakes situation where they risk failing (Hascher, Cocard, & Moser, 2004; Poulou, 2007). This situation could foster a primary orientation toward passing the practicum rather than development as a professional which, in a broader perspective, is more important to both the pre-service teacher and the school society as a whole (Poulou, 2007). As former research has shown, however, the relationship between an achievement goal orientation and a development one is complex (Delvaux et al., 2013). This means that, if pre-service teachers mostly perceive the practicum period as a high-stakes exam where the primary goal is to pass, it might attenuate their motivation toward professional development and they may not value formative feedback from learners (Poulou, 2007).

In this study, we set out to explore the extent that goal achievement was of primary importance to pre-service teachers. The relationship between teachers' motivations and how they perceive feedback from learners is significant, in terms of whether they emphasize development and long-term improvement over attaining more short term goals. We hypothesize that achievement goal motivation is positively related to the perceived usefulness of the feedback (Hypothesis 3), since feedback from learners could help those preservice teachers who have this orientation to come closer to their goals. Further, it is not a part of the formal certification process for pre-service teachers which might be perceived as threatening.

Stress

A pre-service teacher's first experiences of teaching can be stressful (Poulou, 2007; Klassen & Chiu, 2011) because the teaching situation is complex. With an absence of prior

experience, a pre-service teacher is required to consider many factors simultaneously, which can easily lead to working memory overload and stress (Leinhardt & Greeno, 1986). With experience, teachers learn to act more automatically, thus reducing cognitive overload (Anderson, 1982). To reduce the pressure, pre-service teachers can engage in detailed planning and think through possible situations that could arise (Elstad & Christophersen, 2017). While survival might be the primary goal of pre-service teachers' first practicum periods (Poulou, 2007), an increasing level of experience gradually encourages pre-service teachers and newly qualified teachers to understand how learners are empowered to learn as a result of their teaching practice (Calderhead, 1991).

An assessment can cause stress among teachers and pre-service teachers alike, due to the perception of assessment as a form of threat (Kyriacou & Sutcliffe, 1978; Antoniou et al., 2013). Therefore, perceived stress is a possible outcome of teacher assessment, even when the stated purpose is formative in nature. Unnecessary stress has been used as an argument against the implementation of teacher assessment systems in various contexts (Kelly, Ang, Chong, & Hu, 2008). Elstad et al. (2017), however, found that experienced Norwegian teachers did not report high levels of stress related to assessment, although we also found that teachers who perceived a higher level of "control" among the purposes of feedback from learners reported correspondingly higher levels of stress. On the other hand, Delvaux et al. (2013) found that perceived "summative" purposes of assessments could have a positive effect on professional development, when conditions such as clear criteria, perceived fairness of the system and a positive relationship to the rater were fulfilled. The complexity of these relationships supports further investigation of the relationships between stress and teacher assessment. Thus, we hypothesize that stress is negatively associated with the perceived usefulness of learner feedback (Hypothesis 4). Further, stress is often linked to achievement

(Jepson & Forrest, 2006). Therefore, we hypothesize that achievement goal motivation is positively associated with stress (Hypothesis 5).
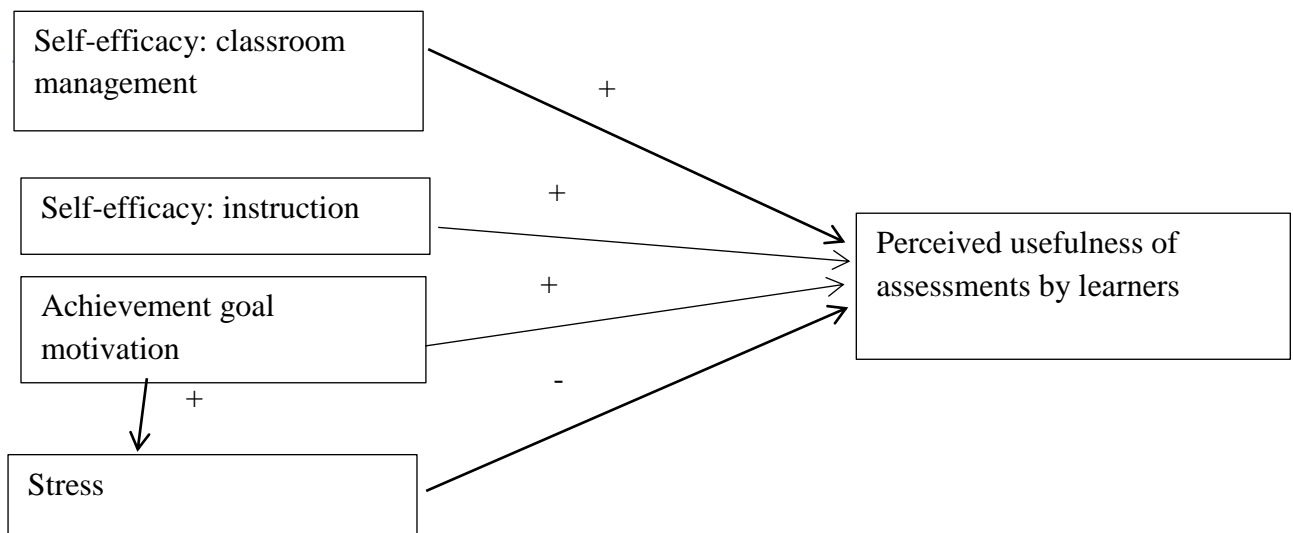
Figure 1 – Illustration of our hypothetical model

Figure 1. Hypothetical model. "+" denotes a hypothesized positive statistical association, and "-" denotes a hypothesized negative statistical association.

The Context: Teacher Training in Norway

As in most national systems, teacher education in Norway is a complex program comprising both a degree in an academic subject (e.g., English, physics, history, anthropology) and teacher training, which more directly prepares the pre-service teacher for professional life in a school context (Darling-Hammond & Lieberman, 2012). Traditionally, in universities, these distinct elements are often addressed separately through an institutional division into academic faculties (for instance, a university's department of physics) and teacher education institutes (such as a university's department for teacher education) (Christophersen et al., 2016). Pedagogic units have provided training in the teacher's professional tasks while academic faculties have provided the subject-related courses (Elstad,

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2010). However, several recent initiatives have contributed to the integration and coherence in the teacher education program which is the focus of this study (Lejonberg, Elstad & Hunskaar, 2017; Lund, Jakhelln, & Rindal, 2015; Vestøl, 2016). The combination of an academic education in the disciplines and practical-pedagogical training together form the qualification required to teach grades 8 to 13 in Norwegian schools.

The courses in pedagogy and subject-based didactics include a minimum of 60 days of teaching practice. These various practice elements are mentored and assessed by teachers, administrators, and teacher educators. These elements can be carried out either individually or in groups. The time spent on individual or peer teaching is typically at least eight teaching hours per week. The pre-service teachers practice in at least two schools (generally covering different levels within the school system, such as lower and upper secondary) during intense practice periods (Elstad & Christophersen, 2017; Christophersen et al., 2015b). How practicum is structured differs between different teacher education programs. However, all pre-service teachers in teacher education for lower secondary and upper secondary schools attend between a minimum of 60 and up to 100 days in practicum. In some programs, practicum consists of two relatively long periods carried out in one year. In other programs, the days are divided between several shorter and longer periods during a five-year masters program. During the last practicum period, pre-service teachers are assessed by means of a final practical examination (a pass/fail assessment). The individual teaching institution, in collaboration with the field of practice, establishes quality assurance and practice assessment standards. Teaching practice is carried out in accredited schools. Schools accredited for teaching practice collaborate formally with the teacher education institution through their governing bodies (which, in Norway, is a local authority or county council). The teacher education institution maintains close contact with the practice school. Pre-service teachers have an opportunity to use their own personal results from the learner feedback as a basis for

individual research and developmental assignments. The student teachers were encouraged to gather anonymous feedback from learners and were provided with a positively framed survey they could use, to increase the possibility of receiving feedback which could be useful for developmental purposes.

Norwegian practicum mentors within the schools are tasked with guiding pre-service teachers during their placements. A representative of the school administration (often a middle manager) also gives feedback to the pre-service teacher. The assessment of the students is a shared responsibility between school-based mentors and the teacher education institution. Experiences and assessments made by learners in pre-service teachers' classrooms are only in exceptional cases systematically gathered and analyzed to be used as a data source, which may improve teaching during the practicum. This is a missed opportunity because an important rationale of teaching is that learners should acquire the material taught. Therefore, learner perceptions of the pre-service teachers' academic teaching and classroom management ought to be an important source of information to identify areas for further development of the instructional, managerial, and lesson planning capacities of pre-service teachers.

Because a systematic program for gathering and reflecting on learner feedback in teacher education has not yet been established in a Norwegian context, and the knowledge is sparse also in other contexts, this study makes a contribution to strengthening teacher training programs by improving learning possibilities for pre-service teachers through providing them with useful information about their teaching to use as grounding for mentoring and professional development.

Method

Our theoretical framework employs the perceived usefulness of learner feedback as the dependent variable. The ability of learners to assess teaching practices is contested in the

literature (Weems & Rogers, 2010). In addition, the method we used, namely anonymous surveys for learners to assess their teachers' educational practices, is quite uncommon in K-12 contexts (Stronge, 2013). However, we know from our previous studies conducted in the Norwegian context that teachers have reported anonymous feedback from learners in their classrooms to be useful (Lejonberg et al., 2016). Therefore, we expect that pre-service teachers could also perceive assessment by learners to be useful even if the learners are typically less skilled. Moreover, to understand how learner feedback of pre-service teachers can contribute to teacher education, it is essential to understand pre-service teachers' perceptions of the feedback they receive.

Because research reports that summative feedback provided too early in the developmental period can be detrimental to learning, we emphasized to our teachers-in-training that the purpose of feedback provided by learners on pre-service teachers was formative in nature (Buck et al., 2010). To ensure that this was maintained, we gave the teachers-in-training control of the assessment, meaning that the pre-service teachers could chose the timing for the assessment, they had full control over the results, and they also could choose not to conduct the assessment at all, without negative consequences. This was an important aspect of the process because we wanted to reassure the pre-service teachers that the learner feedback was not a part of the high-stakes pass/fail evaluations of their practicum. On the other hand, we did encourage them to conduct the assessment, to use it for discussions with their peers, mentors, and learners, and to see it as a source of highly relevant information for self-improvement. We also pointed out the usefulness of being acquainted with a system they would meet as new teachers, since teacher assessment is common in the region where pre-service teachers are most likely to work after finishing their education. Norwegian authorities also emphasize that teacher assessments by learners have developmental purposes

and that they are not meant to rank teachers or otherwise influence career factors, such as salary or career opportunities.

To maintain features of the assessment system consistent with research, we chose a tool with simple, positively framed criteria for the assessment, asking about both the teaching of the teacher-in-training and about the learners' own learning in class. We did not make it compulsory for the teachers-in-training to either conduct the assessment or to share the results with their mentors or others, as we could not ensure that a productive relationship was always present.

Participants

This study focuses on pre-service teachers enrolled in the program for teaching grades 8 to 13 at a Norwegian university. Although the pre-service teachers were informed that they could choose not to respond to our survey, no one claimed this right; this resulted in responses from all 111 pre-service teachers who were present when the study was conducted. Due to missing responses to particular questions, however, only the 72 pre-service teachers who submitted complete surveys will be considered in the multivariate analysis. The pre-service teachers were distributed approximately evenly between lower and upper secondary schools in the practice period during which we encouraged them to carry out assessments.

Instruments

The data presented here were gathered by a survey of the pre-service teachers in their seventh semester (of ten); the data were gathered during obligatory seminar groups after the pre-service teachers had finished their practicum period. The survey consisted of several claims, which were to be assessed on a seven-point Likert scale as a response scale with end points (1= totally disagree and 7= totally agree). The strength of the relationship of each item to the variable it represented is displayed in the structural equation model.

Perceived usefulness of assessment by learners. In order to enhance learning opportunities for both pre-service teachers and learners, we adapted an instrument intended to prompt insights to strengthen pre-service teachers' classroom skills. In this study, pre-service teachers' perceptions concerning the usefulness of assessment by learners was measured based on an instrument developed by Mo, Conners, and McCormick (1998) and Heneman III and Milanowski (2003). We adapted these instruments to the teacher education context (three items). A sample item was: "Feedback from learners helps to provide insight on certain aspects of my teaching that I need to develop."

Teacher self-efficacy. The items in the survey that we used to measure self-efficacy were based on an internationally validated instrument called the Norwegian Teacher Self-Efficacy Scale (Skaalvik & Skaalvik, 2007). In the current study, we distinguished between two forms of self-efficacy:

- Sample item for self-efficacy in classroom management (three items): "How certain are you that you can maintain good discipline in all types of classes or groups of learners?"
- Sample item for self-efficacy in instructional techniques (two items): "How certain are you that you can explain central issues to your learners in such a way that even the lowest-achieving learner among them will understand the subject matter?"

Achievement goal motivation. In our survey, achievement goal motivation was measured by three items (Archer, 1994). A sample item was: "It is important to me to obtain a better score than the other pre-service teachers in teacher assessment in order to be looked up to by the other pre-service teachers."

Stress related to the assessment. Perceived stress was measured by three items in this study; a sample item was "The idea that my teaching was to be assessed was very stressful for me."

Data Analysis

First, descriptive statistics were calculated for all variables in the study, including the mean, standard deviation and range, to ensure sufficient variability to continue the analysis, and we calculated the Cronbach's Alpha scores. Then, structural equation modeling, which is suitable for confirmatory factor analysis and path analysis, was used to analyze the relationships among the variables (Kline, 2005). To address measurement errors in the analysis, the structural models were designed to include the measurement models. If we had conducted a confirmatory factor analysis and used factor scores instead of latent variables in the structural equation modeling, the measurement errors would have had greater influence on the estimates. The assessments of the fit between the model and the data are based on the following indices: root mean square error of approximation (RMSEA), the Tucker-Lewis index (TLI), the goodness-of-fit index (GFI), and the comparative fit index (CFI). According to Kline (2005), $RMSEA < 0.05$ and TLI, GFI, and $CFI > 0.95$ indicate a good fit, while $RMSEA < 0.08$ and TLI, GFI, and $CFI > 0.90$ indicate an acceptable fit. The measurement and structural models were estimated using IBM SPSS Amos 22.

<center>**Results**</center>

Descriptive Statistics

It is pertinent to present some of the results from the descriptive statistics related to the ways in which pre-service teachers perceive the usefulness of receiving feedback from learners. Descriptive statistics also demonstrate that each of the five variables displayed sufficient variability to be included in the analysis. On the 1–7 scale that was used in this study, the pre-service teachers reported a mean of 4.7 on the items that measured perceived usefulness, with the standard deviation of 1.4. These results indicate that the pre-service teachers found overall that anonymous feedback from learners could be useful to them.

Table 1 – descriptive statistics

Items	Range	Mean	Standard deviation	Cronbach's Alpha
W2	1–7	5,0	1,2	0,79
W3	1–7	4,8	1,3	
W4	1–7	4,3	1,4	
W12	1–7	2,6	1,6	0,92
W13	1–7	2,7	1,7	
W14	1–7	2,7	1,6	
S37	1–7	2,5	1,8	0,86
S39	1–7	3,2	2,0	
S40	1–6	2,1	1,4	
S45	3–7	5,1	1,0	0,68
S47	3–7	5,2	1,1	
W49	2–7	5,0	1,1	0,72
W50	2–7	4,8	1,2	
W51	1–7	4,2	1,1	

Structural equation modeling

Figure 2 shows the model tested. The ovals represent the latent variables, the rectangles represent the measured variables, and the circles represent the measurement errors. The structural model consists of terms with paths (arrows) between them. The values of RMSEA, TLI, GFI, and CFI indicate that the structural model shown in Figure 1 has an acceptable fit. The path arrows indicate theoretical common causes, and the figures (standardized regression coefficients) reflect the measured strengths of the connections. Strength increases with the numerical value. Model 1 (in Figure 2) shows the estimated structural model: "perceived usefulness" is the dependent variable, while "self-efficacy in providing instruction", "self-efficacy in classroom management", "perceived stress", and "achievement goal motivation" are the independent variables.

Figure 2: Estimated structural model

Standardized estimates
Chi-square = 69,385   DF = 67   p-chi = ,397
RMSEA = ,022   TLI = ,963   GFI = ,860   CFI = ,973
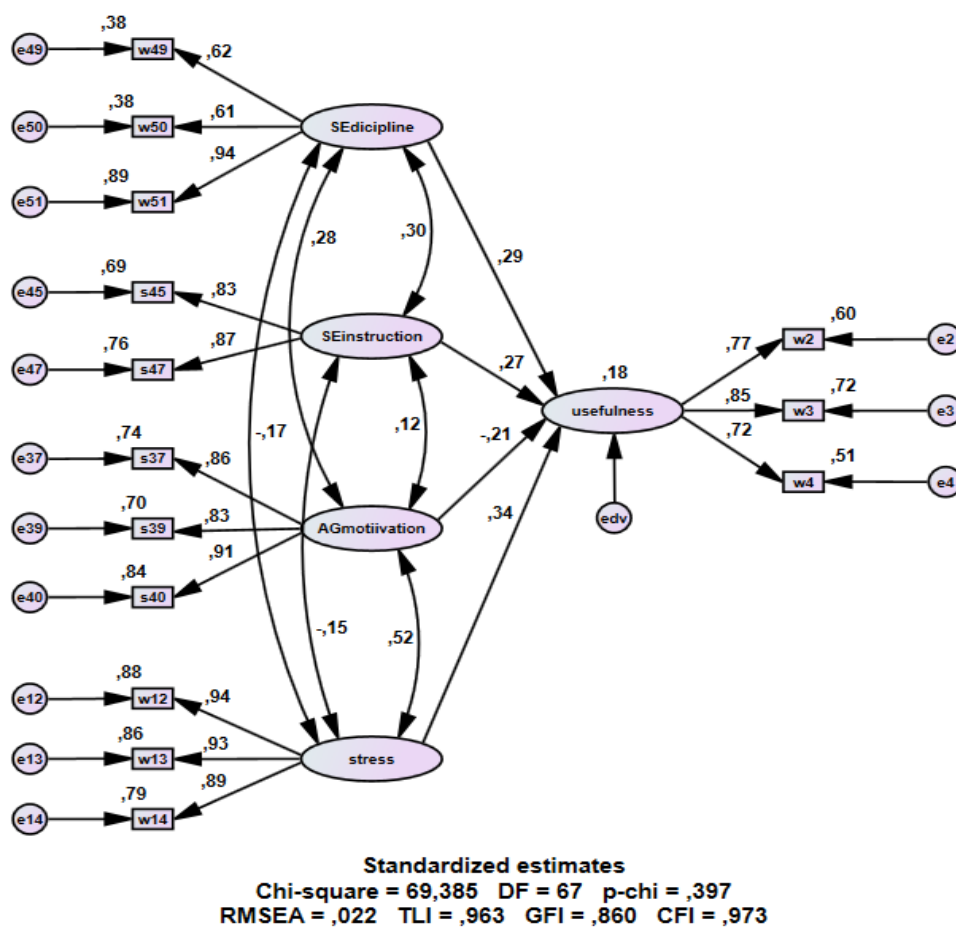
Of our five hypotheses, three were supported and two were not. As expected, the perceived usefulness of learner feedback was positively related to self-efficacy for classroom management and self-efficacy for instructional techniques ($b_{[SEdiscipline \rightarrow Usefulness]} = 0.29$) and ($b_{[SEinstruction \rightarrow Usefulness]} = 0.27$). The usefulness of learner feedback was negatively related to achievement goal motivation, when we had an explorative hypothesis of a positive relation. ($b_{[AGmotivation \rightarrow Usefulness]} = -0.21$). The perceived usefulness of learner feedback was positively related to the level of stress experienced by teachers-in-training ($b_{[Stress \rightarrow Usefulness]} = 0.34$), when we had hypothesized a negative relationship. And we found that achievement goal motivation was positively associated with stress, as we predicted ($r_{[Stress \leftrightarrow AGmotivation]} = .52$). Our results are summarized in Table 2.

Table 2: overview of results

Hypothesis	Wording	Result
1	Self-efficacy for classroom management is positively associated with usefulness of learner feedback	Supported
2	Self-efficacy for providing instruction is positively associated with usefulness of learner feedback	Supported
3	Achievement goal motivation is positively associated with usefulness of learner feedback	Not Supported
4	Stress is negatively associated with usefulness of learner feedback	Not supported
5	Stress is positively associated with achievement goal motivation	Supported

Discussion

The purpose of this study was to illuminate the potential of feedback from learners in their classrooms to provide pre-service teachers with information that can be useful for their professional development. The way in which those who are being assessed perceive this process may be a factor influencing whether the assessment process will contribute to improved teaching practice over time (Levy & Williams, 2004; Nishii, Lepak, & Schneider, 2008). The structural model indicated that different characteristics of pre-service teachers influence whether or not they find the feedback from learners to be useful. Pre-service teachers who reported higher levels of self-efficacy were more likely to report higher levels of perceived usefulness. The most obvious interpretation of this result is that pre-service teachers who are more confident in their teaching abilities benefit from the feedback. Teachers-in-training with low self-efficacy may approach feedback from learners in a defensive posture, stung by the critique more than seeing it as a pathway to improvement. If such feedback focuses on the progress that the teacher has achieved, the feedback can contribute to an increase in the teacher's sense of their capabilities.

Valuing learner feedback could also be related to the relationship between higher self-efficacy and superior performance. Bandura (1997) argued that self-efficacy predicts performance, with "effort" as a mediating variable. If such is the case, our findings might have to do with certain mechanisms that cause those pre-service teachers with higher self-efficacy to work harder and perform better; these mechanisms also cause them to find that receiving feedback from learners is useful for improving their performance even further. It is likely that higher-performing pre-service teachers receive better scores from the learners in their classrooms, which again could affect their perception of the assessment process (Levy & Williams, 2004; Nishii et al., 2008). As an example of the reciprocal causation Bandura postulated, however, it should be noted that although "perceived usefulness" is the dependent

variable in the presented model, potential causality could go in both directions (as is always the case when using this method). It is possible that perceiving learner feedback to be useful in fact contributes to pre-service teachers' self-efficacy. For example, if feedback is seen as constructive and can be used for actual improvement, it could in turn lead to better classroom climate.

This study found that teachers-in-training who reported a higher level of achievement goal motivation tended to report lower levels of perceived usefulness. However, based on the mean score (M = 2.6) and the standard deviation (SD = 1.7) for pre-service teachers' achievement goal motivation, it seems that by and large the pre-service teachers did not evidence a strong competitive motivation. Given that others have argued that learner feedback can lead to counterproductive competition between teachers (Boring et al., 2016a), it is interesting to note that the pre-service teachers in the present study who were driven by these kinds of motivations perceived the feedback to be less useful. In Norway, many municipalities have been eager to highlight "developmental" purposes when implementing assessment systems (Elstad et al., 2015). Bearing these kinds of policy objectives in mind, as mentioned, we communicated to the pre-service teachers that the purpose of gathering feedback from the learners in their classrooms was strictly developmental. An important reason for this was to reduce the possibilities of driving pre-service teachers to be popular rather than effective. The pre-service teachers were also in charge of their own results, as they could choose whether or not they wanted to show their results to others. Our findings indicate that the more competition-driven pre-service teachers were under such circumstances not those who perceived assessment by learners as beneficial.

Our finding that higher levels of stress concerning the assessment were associated with higher reported levels of perceived usefulness of the feedback was surprising, as it contradicted our hypothesis. The mean score of stress was low (M = 2.7 on a scale of 1–7), so

by and large the pre-service teachers did not find receiving feedback from learners to be overly stressful. The results that Delvaux et al. (2013) presented, however, can help to illuminate our findings. It could be that the stress of being assessed may lead teachers to feel "more pressure to undertake professional development" (Delvaux et al., 2013, p. 8) and thus find the input from their learners to be more useful in their work with their own professional development. Delvaux et al. (2013, p. 5), advised that, in order for an assessment system to be perceived as useful, certain criteria should be met, including that the assessment system should be perceived as fair and the criteria should be clear. Further, the pre-service teacher would benefit more from the formative feedback if given the option of following up in a conversation with a mentor in a context where the pre-service teacher is confident that the mentor engages in the conversation to promote reflection and learning for the pre-service teacher. Our learner feedback instrument met these criteria in that it provided a few clearly formulated focus points and clear criteria, so that fairness could be assumed. Moreover, the teachers-in-training had the option to follow up with their mentor. Thus, at least concerning the system itself, developmental purposes ought to have been evident.

The direction of causality between stress associated with the assessment and the perceived usefulness of the feedback might run both ways, meaning that teachers-in-training who found the feedback most useful also experienced the most stress. Alternately, a pre-service teacher with an indifferent attitude toward learners' feedback, due to a perception of learners being unable to give such feedback because of their lack of knowledge, understanding, or maturity, could report a low level of stress. If the feedback is seen as lacking value for development of teaching skills, it may not have resulted in much stress. Therefore, the fairly strong association between stress and usefulness could depend on pre-service teachers' attitudes about learners' capacity for providing feedback.

It is also interesting to note that stress was quite strongly associated with achievement motivation. One possible assertion of this finding is that moderate forms of stress can promote achievement motivation as well as dedication to professionalism. Another possible explanation could be that learners' feedback might be a potential threat to the self, as achievement goals motivation is connected to the perception of the self-worth dependent on achieving positive outcomes (Abouserie, 1995). It then follows that the negative association between perceived usefulness of feedback for pre-service teachers and achievement goals motivation to learning might be explained by the notion that such feedback could potentially threaten the pre-service teachers' sense of self or self-worth. This could be further connected to the high correlation between achievement goal motivation and perceived stress, indicating that pre-service teachers with these characteristics both perceive that potentially threatening feedback is a stressful factor, and that they reject its possible usefulness to preserve a desired level of self-worth. To further develop this trajectory, pre-service teachers characterized by achievement goal motivation are more oriented toward competitiveness and results (Pintrich, 2000). It then follows that feedback from the learners during their learning processes in the practicum period, when most of the pre-service teachers still have a lot to learn before they can reach a level of high proficiency, is less interesting for these pre-service teachers because the formative feedback they receive from anonymous assessments is oriented toward the process of improving and not toward results. A more proximate goal for these pre-service teachers might instead be to pass the practicum period (as the system has a pass-fail-design) and learner feedback is not directly related to the *outcome* of their practicum but to the *process* of becoming better teachers.

<center>**Implications for Practice**</center>

What follows are important implications for practice. It seems that it would be important to find ways to reach pre-service teachers and help them to see that feedback received in the process of becoming a better teacher can help them improve their teaching skills. This implication does not hold only for the Norwegian context, but could also be seen as a way of helping pre-service teachers seeking to improve their skills in other contexts as well. Even if the teachers-in-training are being scored or receive grades on their performance in pre-service practicum periods, a tool for anonymous feedback from learners, designed and used for formative purposes, could be perceived as useful and thus strengthen their possibilities for both passing their practicum periods and also becoming better teachers. In addition, as the rationale for this study suggests, being assessed by learners can prepare them for a system of teacher appraisal, which is increasingly common internationally (Weems & Rogers, 2010). It can also contribute to develop their skills as teachers, thus providing better performances in classrooms and as a probable consequence in multiple ways helping learners to improve as well.

Study Limitations

This study has several limitations from a conceptual perspective, both in terms of parsimonious modeling and in terms of its cross-sectional methodological approach. We acknowledge these limitations and argue that they can serve as points of departure for future research. One limitation of this study is its use of self-reported questionnaire data, as the subjective component of such data is undeniable. Further refinement of the measures used in this study might strengthen future research on these topics. Additionally, the study examined only a limited number of concepts. Even if the number of informants ($N = 72$) of this study is sufficient to estimate the parameters of our model, a higher number of participants would

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have been desirable. In sum, the shortcomings of this study provide directions for future research.

Directions for Future Research

A delimitation of this study was that the participants all came from a single teacher education program. Expanding this research to additional institutions with different cultural contexts would add to our understanding. Future research might explore additional variables that may influence the degree to which preservice teachers-in-training value and make use of learner feedback. For example, future research might examine preservice teachers' mastery motivation in addition to goal achievement orientation in relation to their perceptions of the usefulness of learner feedback, as those with a mastery motivation might be more likely to value the feedback. Future researchers might also explore the connection of learners' feedback with pre-service teachers' perceptions of such feedback. For example, would a pre-service teacher who received critical feedback report a lower level of perceived usefulness? Alternatively, might this pre-service teacher, depending on his or her learning orientation and personal features, report a high level of perceived usefulness, as this feedback could be used in the process of becoming a better teacher? Possible answers to questions like these are, of course, complex in their nature, but revealing possible connections between feedback received and perception of a system such as the one proposed here would be highly interesting as it could help us develop better and more refined tools for feedback. Researchers may wish to consider whether further refinements of the scale would enhance their reliability. Moreover, interviews with pre-service teachers about their perceptions of the feedback they received, along a range from mostly positive feedback to mostly corrective feedback, would be useful in this regard. Further, future research could examine preservice teachers' perceptions of different types of feedback arrangements, for example verbal or quantified forms of feedback.

Since we wanted to maintain the formative purposes of the feedback, as mentioned above, we gave the pre-service teachers full ownership to results and thus we could not obtain any data eliciting this.

Conclusions

Despite its shortcomings, this study may contribute to our understanding of how feedback from learners on the teaching performance and other behaviors of pre-service teachers could be used in teacher training programs. The overall impression from this study is that assessments by learners in their classrooms can be useful for pre-service teachers and can thus be beneficial to teacher training. It is important to note, however, that pre-service teachers' self-efficacy, goal orientation, and level of stress may influence their perceptions of the feedback process. The pre-service teachers in this study did not experience negative consequences of the feedback from learners (for instance salary, position, et cetera). We believe that feedback from learners can enhance pre-service teachers' self-efficacy because this arrangement is not connected to formal consequences. Such requirements could undermine the system. However, this arrangement is not a magic bullet: learner feedback may bring unintended consequences, such as driving pre-service teachers to be popular rather than effective, or may reflect the gender bias of the learners (Boring et al., 2016a). Further, learner feedback does not measure teaching effectiveness at improving educational outcomes. The perceived usefulness of learner feedback is not necessarily related to improvements in teaching effectiveness (Boring et al., 2016b, p. 3). It remains to be seen what use the pre-service teachers make of the feedback they received and the changes in practice that may have resulted. This study described an experiment which is somewhat in front of development of teacher training. Other programs may benefit by building on this new practice.

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