The Effects of Apprenticeship of Observation on Teachers Attitudes towards Active Learning Instruction

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Abstract. Active learning instruction is promoted by the most recent version of the National Program for the Development of Education in Kazakhstan as it is believed to provide more meaningful learning and deeper understanding compared to traditional instruction. In order to achieve greater utilization of the instructional approach at schools, teachers must be aware of active learning techniques and know how to use them. This paper studies whether 'apprenticeship of observation' during a graduate course using active learning techniques has an impact on novice and experienced teachers' attitudes towards active learning instruction. The study used data from a survey of students taking the course, which was focused on educational issues rather than methodological training. The results of the study confirmed the hypotheses that 'apprenticeship of observation' has an influence on teachers not only during pre-service training, but also at later stages of their careers, when they become involved in professional development or continuing education. This influence was especially obvious for teachers with no or little exposure to professional development. Based on these results the paper also suggests some practical implications. Limitations and biases that could affect results are also mentioned.
Keywords: active learning instruction, apprenticeship of observation, professional development of teachers, in-service training of teachers.

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Introduction

Active learning instruction is generally defined as any instructional method that engages students in the learning process by offering them complete meaningful learning activities; and by allowing them to reflect upon what they are doing [Bonwell, Eison, 1991]. It is believed to be able to produce more meaningful learning experiences for students [Dewey, 1916; Piaget, 1952; Piaget, 1954; Kelly, 1991; Vygotsky, 1978] in contrast to the traditional lecture and rote memorization,

where students are treated as passive recipients of information [Pedersen, Liu, 2003]. A positive impact of active learning instruction on student performance, even after controlling for other variables including student background and prior achievement, has been demonstrated in many empirical studies [Barron, Darling-Hammond, 2008; Michael, 2006; Omoyeva, 2011; Prince, 2004]. According to a study by Lester, Onore [1990], the extent to which the benefits of active learning instruction may be realized depends on whether teachers hold constructivist beliefs about learning, and whether they are skilled in active learning methods.

Active-learning and child-centered instruction have been widely discussed in the process of educational reform in Kazakhstan. For example, a change in "the role of the student in the process of learning ...from passive recipient of information to active participant of the educational process" has been stated as one of the goals of the National Program for the Development of Education 2005–2010[1]. Despite the high level of commitment, there was no particular success in the practical implementation of the approach in Kazakhstan for a number of reasons. First, teacher training in the country is greatly based on the old Soviet curriculum that emphasizes more traditional teacher-centered instruction and that is typically delivered by authoritarian teachers trained in the same tradition [Burkhalter, Shegebayev, 2012; Burkhalter, 2013; DeYoung, 2006; Long, Long, 1999]. Second, in-service teacher training in post-Soviet Central Asia is chronically underfunded, provides few regular or equal opportunities for teachers' development, and resembles a patchwork of workshops, seminars, and courses, which update subject knowledge rather than teach skills [DeYoung, 2006]. These issues resulted in criticism towards the current approaches to in-service training of teachers. Recently, the National Center for Professional Development (of teachers) "Orleu" has been established in an attempt to improve the existing approaches. There are some signs that a more systematic approach to teacher training will be developed and that more attention will be paid to training teachers in innovative methodologies; however, to what extent these goals will be realized remains to be seen.

Not only do teachers in Kazakhstan lack specialized training in innovative instructional methods, they also have few opportunities for and little support in using them in the classroom. Teacher shortages, as well as the resulting teaching overload, multi-subject teaching, and poor motivation are serious issues [Silova, 2009]. Additional challenges to teachers' flexibility regarding classroom procedures are created by the centralized control of the curriculum and assessment [Furlong, 2005], combined with increasing accountability and bureaucratic regulations [Steiner-Khamsi, Silova, Johnson, 2006; Whitty, 2006].

[1] Government of the Republic of Kazakhstan (2004) National Education Strategy 2005–2010. http://ru.government.kz/resources/docs/doc8

Finally, teachers' resistance to change is another factor that hinders the implementation of active-learning techniques in the classroom [Burkhalter, Shegebayev, 2012; Burkhalter, 2013]. Interestingly, even after specialized training in more innovative constructivist techniques, teachers continue to use the old array of teacher-centered methods. Burkhalter and Shegebayev [2012] explain that this behavior is a product of the social-cultural influence of the formative Soviet and the current Kazakhstani authoritarian culture, which is not conductive to critical thinking by teachers with a subsequent effect on the teachers' ability to teach using active learning techniques. Burkhalter [2013] argues that Kazakhstani teachers' prior educational experiences in the Soviet system were largely based on fear, which is "impenetrable to cognitive control" and is based on automatic activation mechanisms, which are involuntarily triggered [Ohman, Mineka, 2001. P. 483]. The automatic nature of the fear reaction makes teachers' behaviors difficult to change.

An alternative explanation of the phenomenon of teacher resistance to the use of active-learning techniques, which was observed by Shegebayev and Burkhalter [2013] among teachers in Kazakhstan, is provided by the concept of 'apprenticeship of observation', which was first introduced by Lortie [1975]. According to Lortie, a teacher's past experience as an observer of his/her own teacher's classroom, which took place at an early age, form much of the future teachers' beliefs about teaching and learning and overall instructional philosophies. In continuation of the idea Chong, Wong, and Lang [2010. P. 1] stated: "The unsubstantiated beliefs that pre-service teachers bring with them have been shown to affect what they learn from teacher education and how they learn from it." In other words, the example of teaching that has been observed by potential teachers at an early age impacts on their interpretation of subsequent theoretical methodological training and influences the overall teaching approach used by them later in their teaching careers.

In the original paper, Lortie expressed a particular view of 'apprenticeship of observation', which is important to summarize here in order to explain the subsequent critique. Specifically, while using the metaphor of 'apprenticeship' to describe the way students' observations of their teachers influence their subsequent beliefs about teaching if they decide to become teachers, Lortie noted that the use of the term is "in stark contrast to the traditional notion of an apprenticeship in a trade in which the apprentice is privy to the thinking and reasoning of the master while observing the master at work…[because] in classroom interactions students…are not in a position to be reflective and analytical about what they see, nor do they necessarily have cause to do so" [Mewborn, Tyminski, 2006. P. 30].

Much of the later critique of Lortie's [1975] idea, as well as the studies concerned with ways to overcome apprenticeship of observation were based on a different assumption about the extent to which

students are or can be reflective of teacher's practices in classroom observation. Mewborn and Tyminski [2006] found in their study of the influence of prior classroom experiences on pre-service teachers' beliefs and teaching practices that some pre-service teachers are capable of being analytical and critical of their prior learning experiences. On a similar note, Zeichner and Gore [1990] suggested that some pre-service teachers "can focus more directly on their own learning as pupils and deliberately seek to create in their own teaching those conditions that were missing from their own education" [P. 333]. Ross [1987] argued that pre-service teachers are "highly selective in choosing from among the models thay have seen in order to meld several practices into the type of teacher that they become" (as cited in [Mewborn, Tyminski, 2006. P. 32]).

A series of studies on teacher education are concerned with ways to overcome the negative effects of apprenticeship of observation. Some authors claim that for effective pre-service training it is important to have students reflect upon and deconstruct their beliefs about effective and ineffective pedagogy in order to build on their prior experience (Calderhead, Robson, 1991; Fang, 1996; Feiman-Nemser, Buchman, 1983]. A series of more recent studies claim that self-reflection on one's own teaching practices and experiences should be, in fact, placed at the center of teacher-training [Kennedy, 1989; Loughran, 1995; Richardson, 1990; Ross, 1989; Smyth, 1989; Wildman et al., 1990] because, ultimately, what differentiates a novice teacher from an expert teacher is the ability and the extent of involvement in self-reflection [Cruickshank et al., 1981; Frieberg, Waxman, 1990; Van Manen, 1977; 1991; Wildman et al., 1990]. Grossman [1991] suggested more directly that it is important to make students cognizant of the phenomenon of apprenticeship of observation and its effect on teaching [Grossman, 1991]. She also pointed out that one of the ways to reduce the influence of negative past experiences is to "overcorrect" by "providing extreme examples of innovative practices" [Grossman, 1991. P. 350].

The motivation for this study was our concern that in existing research, the notion of "apprenticeship of observation" is applied exclusively to the analysis of the influence of the early educational experiences of teachers. We hypothesize that, given the life-long nature of education, the influence of "apprenticeship of observation" should not be limited to the early years of learning. What would happen to the instructional beliefs and practices of a teacher who had been negatively affected by the Soviet experience as a student in a teacher-centered classroom if the teacher completes a graduate course led by an instructor committed to, and skilled in, the use of active learning techniques? Would the new "apprenticeship of observation" have a transformative effect on the teacher's views of and practices in constructivist pedagogy?

Methods Our study is based on the analysis of a very unique experience in Kazakhstan—a case study of the first graduate course of the inaugural graduate program in Educational Leadership offered in the country's newly opened Nazarbayev University. The first intake of students in the program was almost entirely composed of teachers from the Nazarbayev Intellectual Schools who entered the program to be trained as leaders in educational reform. The first course that the students had to take was Educational Context and Reform in Kazakhstan, a discussion-based course organized according to constructivist philosophy. While the course did not teach students active learning techniques explicitly, the instructor of the course actively used the techniques in the classroom, thus providing an opportunity for "apprenticeship of observation". Some of the techniques used in the course include the use of mind-mapping, in-class reflective writing, small-group discussions, large group discussions organized in the form of Socratic conversations, in-class group searches on the Internet, group work on small-scale projects such as preparing policy analysis and policy evaluation briefs, group presentations on assigned readings, small-group practical tasks such as proposing the composition of a school-board and a description of the board's responsibilities, etc.

Upon completion of the course, students participated in the study aiming to assess the extent to which the opportunity to attend a course which actively used novel instructional methods changed their understanding and commitment to the use of active learning instruction. The data for the study was collected via a paper-based survey administered at the end of the course. The survey contained four sets of questions: (1) questions assessing the prior teaching experience and professional development background of participants; (2) questions assessing students' perceptions about the extent and the effectiveness of the utilization of active learning techniques in the class; (3) questions assessing the extent to which "apprenticeship of observation" had changed students' understanding of and commitment to the utilization of active learning instructional techniques; and (4) questions assessing students' opinions about the usefulness of particular active learning techniques used in the classroom. At the end of the survey, the participants were asked whether they would like to continue to participate in the study because our intention is to conduct a follow-up study evaluating the extent to which the participants would increase the actual use of active learning techniques in future classes.

The study has three significant limitations. First, it relies on only one source of data collection—students' self-reports on their classroom experiences. These self-reports provide only a one-sided view of the phenomenon and can be biased. To address this limitation, it would be beneficial to triangulate data collection with a survey which uses some alternative method of data collection, such as class-room observation or teacher or student diaries. Second, the survey was conducted only in one class of students, who comprised a very small

Figure 1. **Years of teaching experience**

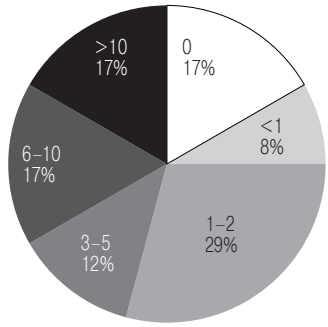
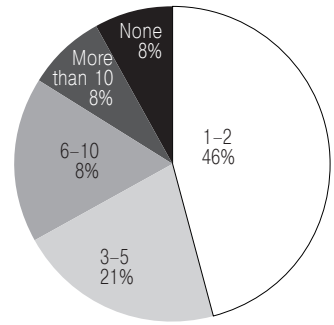


Figure 2. **Number of professional development courses in teaching**



sample. The results of the study cannot be generalized to a larger population of students in Kazakhstan. Third, the study assesses only immediate changes in the students' perceptions and commitments of the teachers after completing the course. It might be beneficial to assess long-term developments in the understanding of active learning techniques and their actual utilization in the classroom.

While the design of the study has several limitations, it is adequate for the purposes of exploring our hypothesis that 'apprenticeship of observation' may have effects in the later stages of a teacher's development. To explore the hypothesis in greater depth it is important to conduct a follow-up study using a greater variety of methods and a larger and more representative sample of participants.

Results

Twenty-four students participated in the survey. As Figure 1 shows, more than half of the participants were novice teachers: four (17%) of them did not have any prior teaching experience, two (8%) students had less than one year of teaching experience, seven (29%) students had one to two years of experience. Three students (12%) had three to five years of experience, while eight students (34%) had been teaching for over six years. The majority, or seventeen (85%) students, taught English in Kazakhstan.

Seventy-five percent of the twenty-four participants had undergone specialized teaching methods training during their studies at university.

As shown in Figure 2, fifty-four percent had none of very limited opportunities for professional development and had taken two or less professional development courses. Twenty-one percent of the participants had taken three to five courses in teaching after completing pre-service training. A quarter of the students took six or more courses in professional development.

Figure 3. **Influence of school teacher**

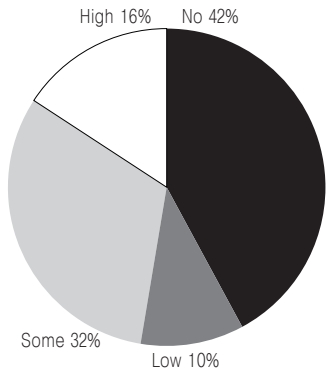


Figure 4. **Influence of university teacher**

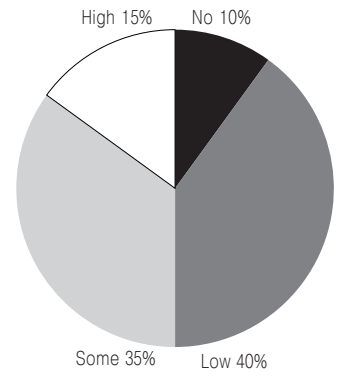


Figure 5. **Influence of peer observation**

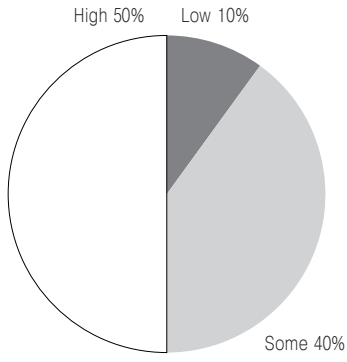


Figure 6. **Influence of independent reading on methods**

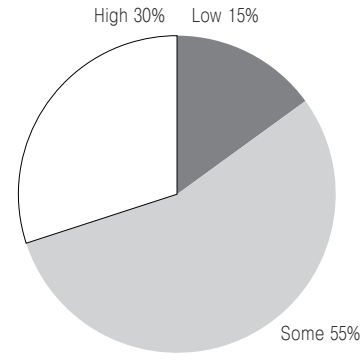


Figure 7. **Influence of university methods training**

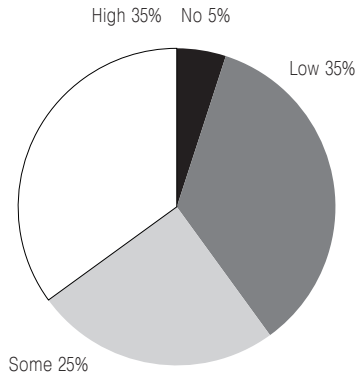


Figure 8. **Influence of methods training in professional development courses**

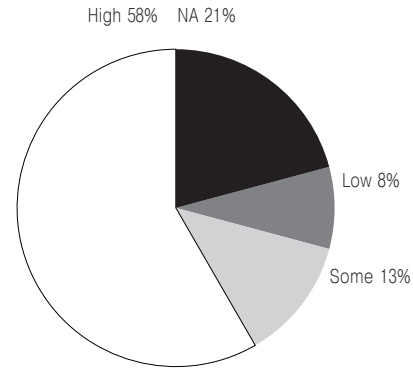


Figure 9. **Number of courses on active learning**

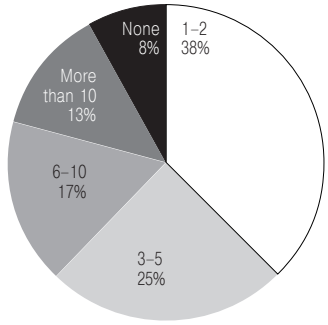
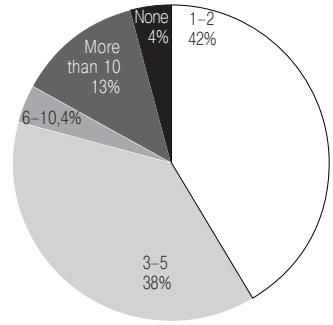


Figure 10. **Number of courses where active learning was used**



Students were asked to rate the extent of influence of their prior observation or professional training experiences on their current teaching practices. Their responses are presented in Figures 3–8.

Interestingly, 52% of the twenty participants who found the question applicable to them, responded that their school teacher had had no or very little influence on their current teaching compared with 48% who thought that their school teacher had been somewhat or highly influential. Half of the participants thought that the university faculty had exerted no or little influence on them as teachers. Peer observation seems to be much more influential on teachers—90% of the participants mentioned that it had somewhat or highly influenced them. The participants found direct training or self-education in methods more useful than following the example of their teachers. Eighty-five percent of students thought that independent reading had some or high influence on their current teaching. Sixty percent of teachers indicated that their university methods training were somewhat or highly influential. Seventy-one percent of participants thought that professional development courses had some or high influence on them as teachers.

A series of questions in the survey was designed to determine students' prior experience with active learning instruction demonstrated in Figure 9.

As shown, forty-five percent of the participants mentioned that they had discussed active learning techniques in two or fewer professional development courses or seminars. A quarter of the students mentioned that active learning techniques had been covered in three to five of the courses. Thirty percent of students had covered the novel instructional approaches in six or more of the professional development courses.

Discussions on active learning techniques in professional development courses is not enough, and participants were asked about courses where active learning was actually used (Figure 10).

Approximately half of the students had very limited exposure to professional development courses utilizing active learning techniques.

Only seventeen percent of the participants had been instructed with active learning methods in their professional development courses, while thirty- seven percent of students had such experience in three to five courses.

When asked what the extent of utilization of active learning methods in their teaching had been, compared with other approaches, the majority of students responded that they used the novel methods equally with other techniques (65%). Only twenty percent of the respondents used active learning instruction as the primary method, while fifteen percent of students used the innovative approaches less frequently than traditional instruction.

The majority of students (73%) felt that they were somewhat effective in the use of active learning techniques. Eighteen percent of the participants felt that they were less effective in active learning instruction than in other methods, while only nine percent found themselves very effective.

Prior to assessing the changes in the attitudes towards the participants' understanding of, and commitment to, the future use of constructivist approaches, they were asked a series of questions about the use of the techniques in the course. The majority of students (67%) thought that the course used active learning instruction as its primary teaching approach. A quarter of students felt that active learning techniques were used in the course at least equally with other approaches.

Students were also requested to evaluate the effectiveness and skills of the instructor in active learning techniques. Over half of the students (58%) thought that the instructor used active learning instruction very effectively, while 38% thought that the instructor was somewhat effective in the use of the methods in the course and 4% thought that the instructor was less effectively. Sixty-seven percent of students believed that the instructor was well–skilled in the use of the methods. Another quarter of the students evaluated the instructor as having excellent skills, 8% believed that the instructor was basic–skilled.

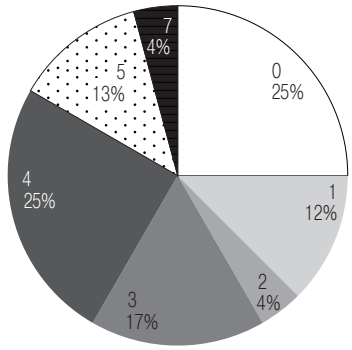
A quarter of the students said that their understanding of active learning techniques significantly improved as a result of the course. The majority of students (63%) said that their understanding of the techniques had somewhat improved, 13% said that their understanding of the techniques had improved a little.

Fifty-nine percent of students have learnt three or more new active learning techniques in the course; while a quarter of the students mentioned that they had not learnt any new techniques (Fig. 11).

Students were also asked questions on the change that occurred in their appreciation of active learning techniques as a learner *and* as a teacher.

Almost a third of the students felt that their appreciation of active learning instruction as a student had changed a lot as a result of the course. Sixty seven percent of students believe that their appreciation

Рис. 11. **Number of new ALT**



had improved somewhat. None of the students said that their appreciation had not changed at all and only four percent mentioned that it had improved only a little.

Similarly, seventy nine percent of students said that their appreciation of active learning techniques as a teacher had improved somewhat (50%) or significantly (29%). Twenty-one percent of the participants indicated that this appreciation had increased only a little.

As for the plans of students to use active learning in their lessons, fifty-eight percent of the participants were intending to use active learning instruction more frequently in their future teaching. The remaining quarter of students said that they would use the approaches as frequently as before, 17% are not going to teach.

Two of the questions on the survey attempted to reveal the change in the perception of effectiveness in the use of active learning techniques by the participants.

Half of the participants said that their self-evaluation in the effectiveness of the use of active learning techniques had not changed as a result of the course. Thirty-four percent of the participants mentioned that their self-evaluation had decreased as a result of the course. Only four percent of the participants said that their self-evaluation had improved.

All of the participants mentioned that their effectiveness in the actual use of active learning techniques had improved to some extent as a result of the course. Only thirteen percent of the students thought that their effectiveness had improved slightly. Eight percent of the respondents noted that their effectiveness had improved a lot. The remaining sixty-seven percent thought that their effectiveness had somewhat improved.

The active learning techniques that students found particularly useful in the course were (1) the large and small group discussions; (2) the mind-mapping and the use of other visual representations as a way to organize group work and to prepare students for large group discussions; as well as (3) the Internet search group projects in class,

where students were asked to explore a particular issue based on readings and Internet search. The majority of students had found the activities to be of great use.

The results of cross-tabulation of the responses has shown that the effect of the "apprenticeship of observation" resulting from attending the course has been greater for less experienced teachers who had less opportunities for professional development. These teachers also felt less effective and knowledgeable in the use of active learning techniques prior to the course and experienced a greater decrease in their self-evaluation of effectiveness as a result of the course. The less experienced teachers have demonstrated a greater improvement in their understanding of active learning techniques after taking the course, are more appreciative of constructivist approaches as both a learner and an instructor, and are more likely to continue to use the techniques in their subsequent careers. On the contrary, the more experienced teachers with more numerous opportunities for professional development feel more knowledgeable and more confident in their ability to use active learning techniques. Hence, they do not find the course particularly influential in terms of appreciation, understanding, self-evaluation or the likelihood of utilizing active learning techniques in their subsequent careers. We did not find any particular relationship between the extent to which an individual was influenced by their school or university teacher or by peer observation, and the extent to which they were influenced by the "apprenticeship of observation" in this course.

Discussion

The initial finding from our study is that teacher observation at the school or university level affected the subsequent teaching practices for no more than half of the students. This finding is consistent with ideas expressed by the critics of Lortie's 'apprenticeship of observation'. Teachers definitely vary in the extent to which they are influenced by modeling their own teachers. One potential explanation is that the students who participated in the study could have been exposed to different opportunities in terms of critical re-assessment of their school experiences during their pre-service teacher training. In addition to that, they could have developed different levels of self-reflection ability which have allowed those with higher levels of ability to re-assess the influence of their university faculty independently and, thus, become less subject to the influence of 'apprenticeship of observation' at the undergraduate level.

In addition to this, such a finding complicates the picture derived from the observation-based study conducted by Burkhalter and Shegebayev [2012] in Kazakhstan. This study claimed that professional development courses focusing on modern methodologies failed to change the behavior of teachers due to the influence of the teachers' past experiences as students. Past experiences may not be as influ-

ential on the views of teachers as Burkhalter and Shegebayev want to believe, rather there could be other explanations to the finding that teachers do not use the novel methodologies. Some possibilities include a lack of support, resistance to change, or misalignment of the incentives structure. Also, our study revealed that teachers consider peer observation to be most influential in changing their instructional approaches. This implies that more attention should be paid in professional development to peer observation.

Second, our hypothesis that 'apprenticeship of observation' can have an effect on teachers not only during pre-service teacher training and initial in-sevice training, but also after they start their teaching careers, has been somewhat confirmed by this largely descriptive study. Teachers seem to be affected by novel experiences as students in courses actively utilizing active learning instruction. Taking a course using active learning instruction appeared transformative for the majority of the students. One of the explanations as to why the course was so influential on students comes from Grossman's [1991] idea that 'overcorrection' and 'providing extreme examples of innovative practices' may counteract the negative influence of the school-level 'apprenticeship of observation'. The graduate level course was using a large variety of active learning techniques as its main method of instruction. A teacher of a conventional course at a secondary school would not be expected to use active learning techniques so intensively. Hence, in some sense, the course was using the extreme examples of innovative practices as suggested by Grossman.

The related finding that the course was particularly beneficial for teachers with less experience and prior professional development exposure can be explained by the idea of self-reflection. Expert teachers could have already become less influenced by school-level 'apprenticeship of observation' because they have had multiple opportunities for critical re-assessment of the experiences and, in addition, could have accumulated a broader repertoire of novel methodologies than the novice teachers. Hence, the experience was not as eye-opening and transformative for them as it was for the novice teachers.

An interesting finding of the study from the point of view of a practitioner is that students found mind-mapping, group discussions, and Internet-search-based projects most useful in the course. One explanation of the students' preference is the mere fact that the techniques were most frequently used in the course and that they were often used in combination. Small group discussions took place during every session to facilitate students' understanding and retention of the complex ideas in the assigned readings, as well as to provide an opportunity for critical analysis. Students were provided with tools to mind-map their small-group discussions in order to better address the needs of the visual learners, to allow those struggling with English to better express and capture their ideas, and to prepare students for the subsequent exchange of ideas in the large group discussions. Since a very

limited number of scholarly papers is available on education specifically in Kazakhstan, and more general readings on experiences in other countries were assigned to students, the small group discussions were followed by Internet-based searches on other projects aiming at exploring how the ideas in the readings work out in Kazakhstani settings. The Internet was used to explore the websites of various educational organizations in Kazakhstan and abroad as case-studies. The aforementioned way of using these three activities might have caused the positive response from the students.

Finally, one of the most likely explanations for the strong effect of the 'apprenticeship of observation' on students could be metacognition-related. Whilst being educated in pre-service teacher programs or professional development courses, teachers ultimately tend to learn how other people learn and think. They are predominantly taught the mechanics and the effects of various instructional methods. Sometimes, they might be provided with opportunities to practice the methods on other students. In such courses, students are subject to instructional methods themselves, but, as has been shown in the introductory section, teacher training and professional development approaches in Kazakhstan tend to be very conservative and tend to use old methods of instruction, so presumably not many students had exposure to active-learning techniques as students.

What made the course different from other instructional experiences of students was the fact that during the course the teachers were not taught the methods directly. Rather they were students of a different subject matter, but were taught with active-learning techniques and had a chance to experience them first-hand. Some of the responses indicate that the students may have realized the major effect that the techniques had on their own learning. In some sense, they understood how they themselves learn better, which is the act of metacognition. A related practical implication is that professional development and in-service training courses should not merely speak about and provide theoretical understanding of active learning methodologies, but should utilize and model the use of methodologies as much as it is feasible within a particular course. Future and practicing teachers taking the course might be affected more if they had transformative experiences as students in the courses, and if they had an opportunity to observe a skillful teacher, rather than if they are merely explained what active learning is and how it should be used in the classroom.

Several recommendations can be made from this study for future research. First, subsequent studies should explore the longitudinal effects of 'apprenticeship of observation' during graduate training by conducting follow-up studies. Such studies should attempt to use a larger and more representative sample of participants and should try to triangulate data collection methods to the greatest extent possible. It is also important to control for the effect of self-reflection on the extent of influence of 'apprenticeship of observation'.

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