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LET'S DEVELOP PEOPLE. LET'S BE DEVELOPED BY PEOPLE.

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CONTENTS

TEACHERS' PERCEPTION OF EFFECTS OF IN-SERVICE TRAINING ON THEIR TEACHING AND ON THEIR STUDENTS LEARNING

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Abstract

There is intensive research on effective methods for in service teacher training (IST; Lipowsky & Rzejak, 2015). However, we know little about teachers' perceptions of their gains from IST and its effects on their students, though this may contribute to teachers' motivation to participate in and learn from IST.

This paper reports on two Mongolian studies targeting teachers' perceptions of IST transfer effects. Study 1 collected information from a representative sample (N1=520) with a self-report questionnaire regarding changes instructional practice. In Study 2 teachers (N2=14) were interviewed about the changes in practice as well as the effects they observed on their students. In Study 1, statistical analyses revealed that participants rated the changes in knowledge, skills and attitudes similarly. However, in their comments they attributed greater importance to the procedural domain. In Study 2, content analyses confirmed the emphasis on teachers' skills and abilities. Mostly higher student motivation and sometimes higher achievement were attributed to teacher participation in IST. The interviews revealed a lack of reflectivity in most cases.

The information from quantitative and qualitative methodology provided a more comprehensive view on the effects of IST, which can be used for improving the efficiency of training. The concept and opportunities for reflection seem to be key issues for Mongolian IST curricula.

The project presented is beneficial for raising the effectiveness of IST because of the combination of qualitative and quantitative methods. Recently, there has been growing attention on using mixed methodology. – In the present project, the questionnaire and the interview themes were the same, thus information collected in breadth and in depth could be related.

In Study 2, a randomly selected group of teachers (N_2=14; three of them novices) were interviewed about their changes in practice as well as their effects they observed on their students. The interview outline was based on the questionnaire of Study 1, so that information collected in breadth and in depth could be related. Here only two issues are discussed (Questions 2 and 3). Content analysis was used to process the interview data as well.

Results

Study 1 examined question (1), teachers' perceptions of knowledge change after IST. Participants found that their knowledge, skills and attitudes improved in an equal measure. The means were high (median 3.72), while median of standard deviation was 0.83 so the sample seems to be more homogenous (Table 1).

Table 1. Means (M), standard deviations (SD) and standard errors (SE) for teacher knowledge components regarding perceived changes in practice after IST (The items are listed in the descending order of means within knowledge domains; valid N=509)

Knowledge domains	Teacher knowledge components	M	SD	SE
Declarative domain	a. Knowledge of specific teaching and learning processes in the respondents' content area	3.89	0.72	0.03
	b. Knowledge of subject-specific content	3.84	0.79	0.03
	q. Knowledge of current educational acts and policies	3.58	0.87	0.04
	c. Knowledge of the psychology of the learning process	3.50	0.86	0.04
Procedural domain	e. Selecting teaching methods appropriate to the curriculum and the students' needs	3.91	0.74	0.03
	f. Motivating students to learn	3.85	0.75	0.03
	i. Educational planning skills	3.78	0.80	0.04
	d. Organizing effective learning groups	3.75	0.83	0.04
	j. Educational assessment skills	3.72	0.77	0.03
	l. Classroom management skills	3.70	0.93	0.04
	n. Interaction with students, parents and colleagues	3.64	0.92	0.04
	k. Effective use of technologies for promoting learning ICT	3.61	0.82	0.04
	m. Leadership and organization skills	3.59	0.86	0.04
	o. Using information from research to improve practice	3.57	0.93	0.04
Affective domain	g. Commitment to self-improvement	3.93	0.80	0.04
	r. Professional ethics and morality	3.78	0.89	0.04
	p. Commitment to promoting the learning of all students	3.69	0.88	0.04
	h. Understanding the effect of family background on children's academic development	3.58	0.93	0.04

Background

The effectiveness of professional development is an important issue in the education secto and it has been a recurrent theme in the literature.

Quantitative studies on the effects of IST found that teachers improved in subject knowledg and teaching practice, which in turn positively influenced student achievement and teache satisfaction (e.g. Avalos, 2011; Mohanty, 2014; OECD, 2009; Vescio, Ross & Adams, 2008 Timperley, 2008). Improvements were also found in students' learning motivation (e.g. König 2017).

Bando & Li (2014) used qualitative various methods in a large sample. They found that afte IST, participants improved their subject knowledge and changed their classroom practices by providing more motivation for students to actively engage in learning.

Teachers' perceptions regarding the gains from IST and their effects on their students may contribute to teachers' motivation to participate in, and learn from, IST. Such teache perceptions receive limited research attention. Therefore, three research questions were formulated and investigated in two related studies:

1. How did teachers perceive changes in their *knowledge* as a result of IST? (Study 1)
2. How did teachers perceive changes in their instructional *behavior* as a result of IST? (Study 2)
3. What changes in students did teachers attribute to their IST development? (Study 2)

Methods

This paper reports results from two Mongolian studies targeting teachers' perceptions of IST transfer effects. Both studies are parts of larger projects. The participants had been involved in compulsory IST before the data collection took place in 2016.

In Study 1, information was collected from a representative sample (N_1=520) with a self-report questionnaire regarding changes in instructional practice. In developing the questionnaire, teachers' standards from different countries and several studies were consulted (DfE, 2013; EC, 2013; ITPD, 2014; Kárpáti, 2009; Koehler, 2009; Kotschy, 2011; Lamont, 2013; NIE, 2009; SIREP, 2010; Shulman, 1987). The process and issues of developing, piloting and improving the questionnaire is detailed in Purevjav & Molnár (2016). The questionnaire extensive. Here we report on only two issues from it (Question 1).

18 teacher knowledge components were presented and participants rated them on five point Likert scales. An open-ended question asked about the most useful lessons learned from IST. In this case, content analysis was used. 331 people responded only and on the average, they raised about two issues.

Teachers were asked an open-ended question explaining the most beneficial elements for them in IST. Two thirds of the respondents answered this question. The answers were processed and analysed to separate them into different pieces of information. This way, altogether 607 remarks were identified. All responses could be assigned to one of two categories: the 'what' of IST, i.e. the content, the targeted knowledge components in training (32.5%) or the 'how' of IST, i.e. effective teaching–learning in the training (67.5%).

In organizing responses into themes for the content of the training, the eighteen knowledge components in the questionnaire were used (Table 2).

As regards 'what' improved as a consequence of IST, some interesting results were found. The closed items did not ask teachers about reflection. Therefore, it was expected that they would raise the issue of reflection and self-awareness in their comments. However, this did not happen. Five further knowledge components from the questionnaire items were also absent in the comments. It seems teachers may have considered procedural knowledge to be more beneficial for them, because 71.6 percent of responses in this category concerned this domain. This means that about one in five responses highlighted teachers' skills. It is interesting to note that in item 'q. Knowledge of current educational acts and policies' included several teachers' specific statement about "Learning the newest core-standards aims and objectives'. Also, for item 'e. Selecting teaching methods appropriate to the curriculum and the students' needs' several remarks specified 'implementing new teaching methods and demonstrations of selected topics'.

Table 2. The frequencies (F) of teacher knowledge components perceived beneficial in IST (The items are listed in descending order of frequencies within knowledge domains; N=520)

Knowledge domains	Teacher knowledge components	F
Affective domain	p. Commitment to promoting the learning of all students	14
	g. Commitment to self-improvement	2
	r. Professional ethics and morality	0
	h. Understanding the effect of family background on children's academic development	0
	Affective domain total	16
Declarative domain	q. Knowledge of current educational acts and policies	26
	b. Knowledge of subject-specific content	8
	a. Knowledge of specific teaching and learning processes in a given content area	6
	c. Knowledge of the psychology of the learning process	0
	Declarative domain total	40
Procedural domain	e. Selecting teaching methods appropriate to the curriculum and the students' needs	60
	i. Educational planning skills	30
	k. Effective use of technologies for promoting learning ICT	22

	j. Educational assessment skills	16
	f. Motivating students to learn	6
	n. Interaction with students, parents and colleagues	5
	o. Using information from research to improve practice	1
	m. Leadership and organization skills	1
	d. Organizing effective learning groups	0
	l. Classroom management skills	0
	Procedural domain total	141
	Total number of remarks	197

As mentioned above, the majority of responses discussed the 'how' of IST: what training activities work for teachers when improving their professional knowledge in IST sessions (Table 3). They seem to prefer more active training methods in cooperative settings.

Again, questionnaire items were used to categorize the responses. This time several other topics emerged. Some of these formed themes and the rest was collected under 'miscellaneous other training suggestions'. These included 'learning management skills', 'learning decision making skills', and a list of several training activities, such as videos of short lessons.

Table 3. The frequencies (F) of themes regarding learning from IST (The themes are listed in descending order of frequencies within categories; N=520)

Categories	Themes	F
Training form	Group work	59
	Pair work	8
	Training form total	67
Training activities	Observation and discussion of the teaching of a person	66
	Creating content or instructional /study materials together	66
	Micro-teaching	45
	Lesson study	27
	Explanation (by instructor)	14
	Discussion of practical problems	7
	Case study	1
	Training activities total	226
Another IST issues	Miscellaneous other training activities suggestions	40
	Sharing experience during IST sessions	35
	Effectiveness and efficiency in IST	33
	Organization of IST activities	9
	IST total	117
	Total number of remarks 410	

Question (2), teachers' perceptions of changes in their instructional behavior was answered by Study 2. Three interviewees answered, "there were no observable changes after IST sessions in [their] instructional behavior" and the other participants gave a total of 28 remarks that reflected their own changes (Table 4). As regards teachers' behavior changes,

most responses highlighted the procedural domain (similarly to Study 1). Only five comments were found on the declarative domain and none on the affective. Two respondents reported on the training itself.

Table 4. The frequencies (F) of themes of teacher behaviour change in the interviews (The themes are listed on the descending order of frequencies within categories; N=14)

Categories	Themes	F
Declarative	Subject knowledge	3
	New core curriculum knowledge	1
	Knowledge of educational regulation & acts	1
Procedural	Selecting teaching methods	8
	Educational planning skills	4
	Interaction with colleagues	4
	Educational assessment skills	3
	Classroom management skills	2
Effective training activities	Lesson study	1
	Writing essays	1
	Total number of remarks	28

The interviews were structured, and the interviewer tried several strategies to elicit information from the respondents. Still, the majority gave too general and broad answers, without supporting them. Only two science teachers, both of them experienced, gave considered and reflective responses. One of them said, 'The most important thing after my IST sessions [was that now] I am doing self-assessment of my own teaching, [and] it gave me new strategies to use in my teaching. On the hand, during IST I learnt about international trends in education and about other teachers' achievements who work in my subject area' (IA).

Study 2 also addressed question (3), teachers' perceptions of their students' changes. Most participants reported that a benefit to students was increased learning motivation, and some mentioned higher academic performance. Six examples illustrate this point. Some interviewees explicitly connected student change to their own changes:

- 'I developed lesson plans. Then students in my class were more motivated' (IC)
- 'After IST I used different feedback forms when teaching my units. These motivated my students' (ID)
- 'Students paid more attention in my classes day by day after my IST. I used more various teaching methods' (IE)

Some interviewees did not or could not make a connection:

- 'Students' Olympiads and their university entrance exams results' (IB)
- 'My students were more motivated in my classes' (IF)

- 'After my IST sessions, my students positively changed, but I could not explain why' (IG)

Three interviewees were unprepared for this question and could not reply to it: 'I have not considered this' (IH). Again, responses were short, general and seemed to lack reflection.

Conclusions

The information from quantitative and qualitative methodology provided a more comprehensive view on the effects of IST, which can be used for improving the efficiency of training. Activities made greater impressions on teachers. When responding to closed items, participants believed that after IST sessions their knowledge, skills and attitudes improved in an equal measure. However, in their comments to an open-ended question, procedural knowledge was reported to be more useful for them. On the other hand, their answers in the interview suggested that their skills had greatly improved after IST. They also indicated that they changed their instructional behavior (especially regarding their choices of teaching methods and feedback forms). They often attributed observable changes in their students' progress to effects of IST.

The concept of, and opportunities for, reflection seem to be key issues for Mongolian IST curricula. The findings of the two studies presented suggested a lack of reflection. This may hinder teachers' personal and professional growth. On the one hand, it could be argued that this finding might be a consequence of their poor planning skills. Further research seems necessary in this regard. In the other hand, also could be argued that this problem of reflection may stem in their lack of participating in research, so the data collection situation was new to them and they were not sure how to handle it. This could be a relevant issue to consider for the future of educational assessment and evaluation in Mongolia.

This paper showed the analysis of data from two studies, collected in three different ways. The discussion demonstrated the scope of data yielded by these methods. Questionnaire data from closed items came from a large sample but was general and restricted by the researchers' decisions. Questionnaire data from one open ended question revealed the emphases of the same respondents, and shed light on the different issues prioritized by respondents and researchers. However, a lack of face to face interaction may have restricted the amount of information. The processed interview data came from a small sample, but it gave in-depth insights into the thinking of the interviewees. Thus, it contributed to refining the information from the questionnaire. Therefore, this research process calls attention to using mixed methods when assessing needs before the developments of training programs.

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References

Avalos, B. (2011). Teacher professional development in Teaching and Teacher Education over ten years. Teaching and teacher education, 27(1), 10-20.

Bando, R., & Li, X. (2014). The effect of in-service teacher training on student learning of English as a second language. Inter-American Development Bank. [IDB] Working Paper Series, No. IDB-WP-529, http://hdl.handle.net/11319/6596

Darling-Hammond, L., & Youngs, P. (2002). Defining "highly qualified teachers": What does "scientifically-based research" actually tell us?. Educational researcher, 31(9), 13-25.

Desimone, L. M. (2009). Improving impact studies of teachers' professional development: Toward better conceptualizations and measures. Educational researcher, 38(3), 181-199.

DfE. (2013). Teachers' standards: Guidance for school leaders, school staff and governing bodies. [UK] Department for Education [DfE]. Retrieved from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/301107/Teachers__Standards.pdf

EC (2013). *Supporting teacher competence development for better learning outcomes.* European Commission. Retrieved from http://ec.europa.eu/education/policy/school/doc/teachercomp_en.pdf

ITPD (2014). *2014 ony üjl ažillagaany* tajlan [2014 yearly action report]. Bagšyn Mèrgèžil Dèèšlüülèx Institut (BMDI) [Institute of Teacher's Professional Development], Ulaanbaatar, Mongolia. Retrieved from http://itpd.mn/pdf/2014etses.pdf

Kөrpөti, A. (2009). Teacher training and professional development. In K. Fazekas, J. Köllő & J. Varga (Eds.), *Green book for the renewal of public education Hungary (*pp. 203-226). Budapest, Hungary: Institute of Economics of the Hungarian Academy of Sciences. Retrieved from http://planipolis.iiep.unesco.org/upload/Hungary/Hungary_Green_book_2009.pdf

Koehler, M., & Mishra, P. (2009). What is technological pedagogical content knowledge (TPACK). *Contemporary Issues in Technology and Teacher Education*, 9(1), 60-70.

Kцnig, J. (2017). Motivations for teaching and relationship to general pedagogical knowledge. Guerriero, S (ed). Pedagogical knowledge and the changing nature of the teaching profession. OECD Publishing, Paris. Retrieved from http://dx.doi.org/10.1787/9789264270695-en

Kotschy, B. (2011, ed.): *A pedagógussá válás és a szakmai fejlődés sztenderdjei* [Standards of teacher professional development]. Eger, Hungary: EKF. Retrieved from http://www.epednet.ektf.hu/eredmenyek/a_pedagogussa_valas_es_a_szakmai_fejlodes_sztenderdjei.pdf 19-39.

Lamont, E., & Pyle, K. (2013). *Teacher Voice Omnibus November 2012 Survey: New teachers' standards and appraisal regulations*. [UK] Department for Education. Retrieved from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/190920/DEPARTMENT FOR EDUCATION-RR283.pdf

Lipowsky, F., & Rzejak, D. (2015). Key features of effective professional development programmes for teachers. RICERCAZIONE, 27

MES. (2012). Teacher development program. Ministry of Education and Science [MES]. Retrieved from www.meds.gov.mn/data/pdf/teacher%20development%20program.pdf. Accessed October 1, 2017.

Mohanty, S. P. (2014). In-Service Training spells its Impact on Classroom Practices: Observation of Some Significant Variables at Elementary School Level. Scholarly Research Journal for Interdisciplinary Studies (SRJIS), 2, 1264-1275.

NIE (2009). *A Teacher education model for the 21st century: A Report by the National Institute of Education, Singapore*. Singapore: National Institute of Education. Retrieved from http://www.nie.edu.sg/files/spcs/Te21_online_ver.pdf

OECD. (2009). Creating effective teaching and learning environments: First results from TALIS. Paris; OECD. Retrieved August 07, 2009 http://www.oecd.org/dataoecd/17/51/43023606.pdf

Purevjav, D. & Molnбr, E. K. (2016). A pilot study of needs assessment for in-service teacher training. In Molnбr, Gy. & Bъs, E. (eds.): CEA 2016: 14th Conference on Educational Assessment: Program; Abstracts. SZTE BTK Nevelйstudomбnyi Doktori Iskola, Szeged, Hungary. p. 143

Purevjav, D., & Molnбr, E. K. (2017). What do teachers learn from in-service teacher training? Molnбr, Й. & Vцgh, T. (Eds.) CEA 2017 15th Conference on educational Assessment: Program. p. 138. Retrieved from http://www.edu.u-szeged.hu/pek2017/download/PEK_2017_ABSZTRAKTKOTET.pdf

Shulman, L. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review*, 57(1) 1-23. Retrieved from http://www.hepgjournals.org/doi/abs/10.17763/haer.57.1.j463w79r56455411

SIREP (2010). SIREP Report No 1: Teaching Competency Standards in Southeast Asian Countries Philippine: Seameo Innotech Regional Education Program. Retrieved from http://www.seameo-innotech.org/wp-content/uploads/2014/01/SIREP1%20-%20Teaching%20Standard%20FINAL.pdf

Timperley H. (2008). Teacher professional learning and development. Educational Practices Series 18, Brussels: International Academy of Education.

Vescio, V., Ross, D., & Adams, A. (2008). A review of research on the impact of professional learning communities on teaching practice and student learning. Teaching and teacher education, 24(1), 80-91.