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Dimensions of student participation: participatory action research in a teacher education context

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Appendices

Appendices

Appendix 1 – List of readings as part of the TEd program

READINGS ON ACTION RESEARCH AND STUDENT PARTICIPATION

Required (supplied in class)

Groundwater-Smith, S. (2005). *Learning by listening: student voice in practitioner research*. Paper presented at the International Practitioner Research & Collaborative Action Research Network (CARN) Conference, Utrecht, the Netherlands.

Smit, B. H. J. (2013). Young people as co-researchers: enabling student participation in educational practice. *Professional Development in Education, 39*(4), 550-573. doi: 10.1080/19415257.2013.796297

Trent, A. (2003). Decentering the teacher: a practitioner's account. *Teachers and Teaching: Theory and Practice, 9*(4), 295-307. doi: 10.1080/1354060032000097226

Suggested (available online or in the Multimedia Center)

Admiraal, W., Smit, B. H. J., & Zwart, R. (2014). Models and design principles for teacher research. *IB Journal of Teaching Practice, 2*(1), 1-6.

Crawford-Garrett, K., Anderson, S., Grayson, A., & Suter, C. (2015). Transformational practice: critical teacher research in pre-service teacher education. *Educational Action Research, 23*(4), 479-496. doi: 10.1080/09650792.2015.1019902

Meijer, P. C., Oolbekkink, H. W., Meirink, J. A., & Lockhorst, D. (2013). Teacher research in secondary education: Effects on teachers' professional and school development, and issues of quality. *International Journal of Educational Research, 57*(0), 39-50. doi: http://dx.doi.org/10.1016/j.ijer.2012.10.005

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Appendix 2 – Matrix SPinSTAR (Student participation in student teacher's action research)

Action research stage	Level of school student involvement				
	None (no SP)	**Inform** (data source)	**Consult** (active respondent)	**Participate** (co-researcher; knowledge creator)	**Collaborate** (researcher/joint author; shared decisions)
a. Problem definition (RQs)					
b. Intervention design					
c. Research design					
d. Conduct intervention[19]					
e. Data collection					
f. Analysis of results					
g. Formulation of suggestions / recommendations					
h. Making public					

(adapted from Bovill, 2017; Fielding, 2001, 2011, 2018)

The matrix *Student participation in student teacher action research* (SPinSTAR) has been designed within this study to describe and analyze school student involvement in pre-service student teacher action research as found in the specific context of this study. This scope has two characteristics that determine the matrix design. First, the action research project is conducted in a one-year postgraduate setting, which allows for only a relatively short time-span for the whole research process and in particular for actually conducting the research steps (about one half-year). Second, the teacher education context requires the PST to carry out a research assignment and to conduct the research according to the TE program's requirements and standards, for instance on research approach and time schedules. Consequently, in these respects, the matrix *SPinSTAR* deviates from Fielding's (2001) model of student participation and Bovill's (2017) matrix of student involvement. Bovill's level 'Partnership' suggests a sustained teacher-learner relationship that can be inferred from an ongoing teaching practice, and not or only tentatively from a one-off activity or a single research project. For that reason, the level 'Partnership' has been replaced by 'Collaborate', which implies a joint way of working and decision-making, but not necessarily a lasting pattern. Since ultimately, in this context, the responsibility for the PST research is not shared between the student teacher and the school students – as with higher levels of Hart's *Ladder of Participation* (Hart, 1992) – and the school students are not the initiators of the research project, the level 'Control' does not add any meaning to connotations of locus of responsibility and decision-making already comprised by the four other levels of student involvement. Therefore, contrary to Bovill's matrix, 'Control' is not included as a part of the *SPinSTAR* matrix. To be able to identify also the non-existence of student involvement in specific stages of the research process, the column 'None (no SP)' has been added. This category is coded with the actor, source or target group for the activity, either the teacher herself or significant others: Individual, Peers, Literature/Theory, School/curriculum.

[19] Although conducting the intervention in class is part of the action research process, in the context of this study it is not related to school student involvement in decision-making processes with regard to the action research project. Therefore, this row is not used for coding the level of student involvement.

Appendix 3 – Level of student involvement – definition and decision rules

Level	Definition	Coding/Decision rules
None No SP	School students themselves are neither actively nor passively involved in the PST research and information from or about them is not being used for the action research project.	Only coding type of resource used by PST or target group for the activity: - individual (PST all by her/himself) - theory; literature - peers (at school or institute)
Inform Data source	Use of information from or about school students (e.g. student data on progress or well-being) without further interaction (such as explanations). Also: PST informs SSs, e.g. presents results to SSs.	Types of data and response options are not chosen by SSs. Also: SS materials In surveys: closed questions. Thinking-aloud: **Inform** when not followed by explanations. PST Informs during analysis of results: if SSs think along with the PST about interpretation of results → **Consult**. Analysis of results: as soon as SSs make suggestions and recommendations → next AR stage.
Consult Active respondent	Use of SS's explanations, views, opinions, or suggestions.	Through dialogue, discussions, or open forms of communication. Information is not pre-coded; the SSs can freely express her-/himself. In surveys or dialogues/interviews: answers to open questions.
Participate Co-researcher; knowledge creator	SS is actively involved in the research process and in the creation of new knowledge (results, insights)	The SS follows actions and plans set by the PST or others. Either PST takes a lead role and students actively support (co-researchers) or students take lead roles and PST actively supports (knowledge creators)
Collaborate Researcher; joint author; shared decisions	SS and PST jointly conduct (parts of) the research activities and both participate actively in decision-making on research activities and processes.	Students and PST decide on a joint course of action together

Appendix 4 – Action research stage – definition and decision rules

Action research stage	Definition	Coding/Decision rules
a. Problem definition (RQs)	Exploration, development and definition of the problem and formulation of project goals and research questions.	All activities that contribute to problem definition. So, also: data collection and analysis are coded in this stage if the activities are conducted for the purpose of problem definition.
b. Intervention design	Formulation of design criteria and development of an intervention (tool or instrument, teaching-learning method or approach, classroom or school practice, teaching-learning materials, lesson planning, etcetera).	Planning and preparing all that will be done and used in class as a possible solution to the problem; a change in teaching and learning practice to be investigated. Mere SS involvement during teaching/learning is not sufficient for including the activity; the SP has to pertain to the *design* of the intervention, before actually conducting it.
c. Research design	Development of research steps, methods, instruments, and procedures.	Planning and preparing all that is needed to investigate the problem and to be able to answer the research questions.
d. Conduct intervention	Enactment of the intervention in classroom or school practice	This stage is not applicable to SP in PST research, because school students are enacting the intervention by implication, and do not decide on steps during this stage. e.g. SSs teaching each other is not coded as SP, because it does not imply decisions on the research, such as the principles of the intervention.
e. Data collection	Collection of existing or new data contributing to answering the research questions.	Also generating data or providing data. Data collection for or during problem definition or intervention design is not coded in this stage.
f. Analysis of results	Analysis of collected data aimed at answering the research questions, interpretation of results, and drawing conclusions in the light of theory and practice.	Teacher analyzes school student data, without involvement of SSs in the analysis process → Level = None (No SP).
g. Formulation of suggestions / recommendations	Providing tips, suggestions, recommendations for designing the research or for changes in the teaching and learning practice.	This stage cannot be combined with the student involvement level 'Inform', because any school student activity in this stage involves suggestions (active SS input), which implies level 'Consult', 'Participate', or 'Collaborate'.
h. Making public	Reporting, presenting, publishing, or disseminating of available research outcomes, results, products, conclusions, and recommendations, in any form (oral, written, visual, material, other) to teacher educators, participants, stakeholders, or others.	Mostly: PST research report Also: presenting or making available SS's products, teaching materials as outcomes of the research. If PST report did not involve SSs in writing, commenting on drafts, then 'None; no SP'. However, SSs might be involved in other ways of making the research results public; then coded as one of the levels.

Appendix 5 – Types of student participation in PST action research projects; in keywords[20]

	Level of school student involvement				
Action research stage	**None** (no SP)	**Inform** (data source)	**Consult** (active respondent)	**Participate** (co-researcher; knowledge creator)	**Collaborate** (researcher/joint author; shared decisions)
a. Problem definition (RQs)	*Individual* - PST's experience in teaching/with class - PST views and preferences - PST-class relationship ratings *Peers* - peer teacher practices - peer conversations and feedback (CFs, coach, supervisor, facilitator, research group) *Literature/theory* - educational research - educational theory - school subject teaching - student voice *School / curriculum* - school context / issue - national policy	PST class/lesson observations PST problem assessment from SS work (tasks and materials) SS questionnaire, survey (closed questions); SS feedback group questionnaire SS previous test scores	PST-SSs interview / talks / chats PST-SSs general problem-exploring brainstorm SS questionnaire, survey (open questions) PST use of findings from former PAR stages (subsequent cycles)	SSs research group (class subgroup) PST-SSs research-focused brainstorm SS try-out/pilot of intervention Class discussions to identify problems	Class discussion on problem/RQ decision SSs research team discussion on problem/concepts/RQ decision
b. Intervention design	*Individual* - PST fabrication of tools/methods *Peers*	PAR project intermediate findings inform intervention, e.g. teaching materials SSs test scores, exam results, grades	SSs group/subgroup discussion SSs reflection-feedback session; class feedback on lesson proposal	SSs research group results SS suggestions for working methods SSs pilot group meeting	PST-SSs agreement on methods / strategies PST-SSs joint decision on content a/o procedures

[20] The table cells present the type or form of the SP activity, per action research stage, as derived from the PAR reports. The content or goal of the activities is directly related to the respective AR stage; therefore, even activities with the same labels can have different functions in different stages. For instance, at the problem definition stage, class observations by the PST might form the basis for recognizing a problem to investigate or might be used for exploring if an issue does indeed occur in the specific context. At the data collection stage, such PST class observations are the instruments to obtain data needed for answering the research questions.

Action research stage	Level of school student involvement				
	None (no SP)	**Inform** (data source)	**Consult** (active respondent)	**Participate** (co-researcher; knowledge creator)	**Collaborate** (researcher/joint author; shared decisions)
	- peer conversations and feedback (CFs, coach, supervisor) *Literature/theory* - methodology - aspects of chosen problem	SS intervention idea questionnaire PST constructs didactic tool based on SSs work PST assessment of SSs interests/characteristics PST explanation of content/procedures/criteria	SS questionnaire, survey (open questions) SSs identify problems in teaching/learning SSs suggestions for working method		PST-SS research team meeting
c. Research design	*Individual* - PST fabrication of instruments - PST selection of SSs (groups) - PST decision on research procedures *Peers* - peer conversations and feedback (CFs, coach, supervisor) *Literature/theory* - methodology / instrument design	SSs test scores SSs' observed problems PAR project intermediate findings	PST-SS negotiation on partaking in PAR SSs concerns	SSs research group results SSs pilot group meeting	PST-SSs intake meeting co-research team PST-SSs research meeting/discussion PST-SSs joint construction of research instruments
d. Conduct intervention					
e. Data collection	*Individual* - PST reflections *Peers*	SS questionnaire, survey (closed questions)	SS questionnaire, survey (open questions; added remarks)	SSs research group interview (feedback on lessons)	SS research team takes a SS survey

Action research stage	Level of school student involvement				
	None (no SP)	**Inform** (data source)	**Consult** (active respondent)	**Participate** (co-researcher; knowledge creator)	**Collaborate** (researcher/joint author; shared decisions)
	- Peer feedback on findings - Peer class/lesson observations - Peer teacher questionnaire	SS reflection form / lesson evaluation form (closed questions) SS test scores, exam results, grades SS self-ratings (closed); SS line graphs of self-reported progress SS material / work / output PST class/lesson/social media observations PST field notes of class discussions	SS reflection form / lesson evaluation form (open questions) PST-SSs talks/chats/informal conversations SS interviews (individual; focus group) SS explanations of observations SS evaluation of own learning SS feedback on intervention; SS reflection-feedback session SS feedback on the research project classroom discussions exit-tickets/post-its	SSs/class tally of evaluation results SS-led SS discussion of *their* learning problems SSs-conducted lesson observation	
f. Analysis of results	*Individual* - PST analyzes data - PST creates categories, results tables, graphs - PST summarizes SS suggestions *Peers* - Peers check results (triangulation) *Literature/theory*	PST shares results with SSs	PST-class evaluative discussion on survey results and PAR process	PST-SSs discuss results PST-SSs research group evaluative discussion on survey results and PAR process SSs explain/interpret results	PST discussion of results with SSs research group SSs create categorization of data

Action research stage	Level of school student involvement				
	None (no SP)	**Inform** (data source)	**Consult** (active respondent)	**Participate** (co-researcher; knowledge creator)	**Collaborate** (researcher/joint author; shared decisions)
	- PST interprets results in light of theory				
g. Formulation of suggestions / recommendations	*Individual* - PST suggests good teaching practices - PST plans future PAR steps		SSs suggest solutions to found problems PST evokes SSs ideas for lesson/intervention improvement SS mind maps of ideas for improvement of future lessons SS survey (open call for tips/suggestions) SS reflection-feedback sessions PST-SS suggestions interview	SSs research group suggestions SSs preferred activities for various moments during the week	PST-SSs meeting to jointly suggest on school language policy
h. Making public	*Individual* - PST writes PAR report *Peers* - PST presents/discusses findings at school - PST shares findings outside school	SSs read PAR report		SSs present PAR findings in class	

PST = pre-service student teacher; SS = school student; CF = critical friend (from peer PST group); PAR = participatory action research.

Appendix 6 – PST interview guide

[start with asking consent for audio recording]

Experiences with the PAR assignment

Now, almost at the end of the study year, **how do you view doing action research at school? [=the PAR assignment]**?

Subsequent – probing – questions:

- What did you find interesting, exiting, or useful; what did you find challenging, boring, or useless?
- To what extent and in what way did you involve school students into your research? What do you think of that? And how did your school students feel about participating?
- Did you conduct the research as planned? In what way yes/no? What changed, and why? [for case studies: relate this question to the submitted research plan, logs, research report]
- What helped or hindered you in doing the research?
- Did you feel equipped for conducting the research? To what extent did you feel supported and facilitated? Please explain. [specify: institute/TEs/facilitator; school/mentor]
- What did you take yourself from doing research [participatory action research] at your school? What value do you see in it?

Would you consider **doing teacher research after graduation**? Would you involve school students in any way? Why yes/no?

Has anything **changed in your view** on teacher research or student participation? If so, what, and what triggered that? [critical incidents; optional: draw a story-line]

View on the content and set-up of the WTP TE program

If you take a look at the World Teacher Program, as it was carried out this study year, **where and how are student voice and student participation visible for you**?

[if needed: refer to the general theme of the program: 'Focus on the learner']

Subsequent – probing – questions:

- Did/do you feel that your voice was being heard in the TE program? If yes, how? If no, why not? What is your opinion on that?
- What in the WTP program helped or hindered you in 'focusing on the learner'?
- Do you feel supported in learning to 'focus on the learner'? If so, in what way?
- How does the WTP program relate to your school practice with regard to this central theme?
- According to you, what else is needed to be well prepared for 'focusing on the learner'? Within the institute, the school, elsewhere … Is anything (still) missing in the program that should be part of it? If so, what?

Experiences with the PhD research

What have you **experienced with regard to my research**? How do you look at that?
[aspects to focus on: way of being informed; activities; data collection instruments (one-minute papers, logs, SS questionnaires); frequency and timing]
Do you have any **suggestions for me as researcher** of the student teachers' research part within the WTP TE program? How could I best monitor what STs do with regard to PAR/student voice?
[aspects to focus on: see above + missed topics]

Other issues

Are there **any other issues** related to SP in TE that you feel are important to talk about?

Appendix 7 – Level of student involvement

For coding the instances of research activities as one of the five levels of student involvement, definitions were used as shown in Table 17 (adapted from Bovill, 2017; Fielding, 2001, 2011, 2018). Level of involvement (or participation) pertains to the degree of active engagement of school students in pre-service teacher students action research projects and their role in the decision-making processes during or based on the research project.

Table 17. Level of student involvement

Level	Definition
None No SP	School students themselves are neither actively nor passively involved in the PST research and information from or about them is not being used for the action research project.
Inform Data source	Use of information from or about school students (e.g. student data on progress or well-being) without further interaction (such as explanations). Also: PST informs SSs, e.g. presents results to SSs.
Consult Active respondent	Use of SS's explanations, views, opinions, or suggestions.
Participate Co-researcher; knowledge creator	SS is actively involved in the research process and in the creation of new knowledge (results, insights)
Collaborate Researcher; joint author; shared decisions	SS and PST jointly conduct (parts of) the research activities and both participate actively in decision-making on research activities and processes.

Identification of the overall type and level of student participation (SP); eight cases.

For this step, based on the PST PAR reports, characteristics of the PST PAR project were described in short summaries of main topics and research activities (for an example, see Appendix 8 – Case summary and perceived conditions). Subsequently, they were further summarized along the dimension *level of student involvement* and *action research stage*. The summarized project descriptions were labelled as one or more most characteristic levels of student involvement (Table 18 and Appendix 7 – Level of student involvement).

Table 18. Overall level of student participation in PST PAR projects

Case	Level of student participation	SP keywords
1	PAR project focused on how the number of language errors that HAVO 3 students make on their end-of-unit tests through using visual tools can be lowered. Students participate in this PAR project at the level of data source and active respondent. Collaboration was planned and strived for, but not realized.	Inform Consult
2	PAR project focused on motivating factors for TTO students who find studying English literature challenging. Student participated in this PAR project on the level of 'participation' in designing the lessons (focus topics, content, form). In designing and conducting the research the students participated as active respondents.	Participate Consult

Case	Level of student participation	SP keywords
3	PAR project focused on why codeswitching occurs in language and science bilingual classroom and if it is considered beneficial by students. Students participated in this PAR project at the level of data sources, active respondents and a few of them as co-researchers.	Inform Consult Collaborate
4	PAR project focused on controllable factors in the process of evaluating group work which can enhance student motivation in cooperative learning forms. Students participated in this PAR project on the level of data source and active respondents.	Inform Consult
5	PAR project focused on how to use technology to increase effective learning in Language Acquisition for two Year 10 MYP classes. Students participated in this PAR project at the level of data source. Two students participated on the level of collaboration during this PAR project.	Inform Collaborate
6	PAR project focused on the relation between the self-formulated identity of non-Dutch or mixed background learners and the historical topics that they feel most related to. Consequently, the research focuses on which suggestions could be made to improve the relevance of history education in the context of a multicultural school? Students participated in this PAR project on the level of 'participation' for the design on the intervention. In designing and conducting the research they participated on the level of data source and active respondent.	Inform Participate Consult
7	PAR project focused on how the students' motivation to learn for biology could be increased by designing lessons in which motivating tasks and a reward system were designed. Students participated in this PAR project at the level of data source, active respondents, and collaboration.	Inform Consult Collaborate
8	PAR project focused on the research question whether Hadfield and Dörnyei's theory, which entails visualizing a future self, helps students to become more (intrinsically) motivated. Students participated in this PAR project at the level of data source and active respondent.	Inform Consult

Appendix 8 – Case summary and perceived conditions

Example Case 2 (PST1-09)

Based on PST1-09's observation of the students' attitude towards literature and literary analysis, she decided to explore what the motivating factors were for TTO students who found studying English literature challenging. This was done in 3 cycles (across 3 terms).
First was to discuss the contents for the 4th year and the skills students would need to achieve the end results. Reflection and feedback sessions with SSs were held to track student progress and to decipher what needed to be addressed next or worked on more. Finally, students were provided with two questionnaires, one on motivation regarding studying English literature and another containing questions geared towards t4b and their English curriculum.

- Reflection and feedback sessions (active reflection by PST and students): clues for (teaching) adjustments needed in future; finding motivating factors for TTO students in studying literature; understanding learners' needs and abilities, and emotions; track student progress
- Student surveys
- PST's field notes of class discussions

Site B (practicum; class, school)	**Site A (TE program/institute)**
PST and school students encounter one another amid *practice architectures* that enable and constrain their interactions:	PST and teacher educators encounter one another amid *practice architectures* that enable and constrain their interactions:
Cultural-discursive arrangements	***Cultural-discursive arrangements***
Sharing findings with school students was not necessary because of the research topic; and also because change in the desired direction was already visible. Research is not considered that important in school either. School is very academic, but not about research; nobody talks about research projects. No contact with the subject coach about the research.	PAR is a good introduction to teacher research.
Material-economic arrangements	***Material-economic arrangements***
Usable result in the end. At the same time, research activities can also be used for own teaching (e.g. feedback from school students in the research can also be used for lessons [thus less conflict with curriculum]) Finding / choosing a topic that is a problem for both PST and school students was difficult, and took time. Having only been able to do little in school; small research project, but have enjoyed that. IB curriculum at this school is so packed that there is hardly any space / time for research. Suggestion: allow more time for research. Not seen any opportunity (space) to discuss questionnaire results with school students.	Good project, but be realistic about how much is possible. Teacher education program needs to recognize that research is a really big thing and maybe let PSTs choose whether to do that. A combination of practice and an international internship is a lot; too little account is taken of what is going on (simultaneously) in the program More time would make PST enjoy research more.
Social-political arrangements	***Social-political arrangements***
Topic that really bothered PST No colleagues who do research Fellow teachers at school not so keen on research; not inclined to join, make room for research. Easier if colleagues were more involved with research; if there were also an verbally expressed research attitude (as with [my school]).	Theory-practice gap Suggestion: stronger connection university-school (theory-practice)
Which are bundled together in characteristic ways in *practice landscapes* and *practice traditions*	**Which are bundled together in characteristic ways in *practice landscapes* and *practice traditions***

Note: text in table cells refers to conditions as paraphrased from the interview transcripts (originally in Dutch; translated by the authors).

Appendix 9 – Table of enablers and constraints, per case

Example from Case 2

Table of PST's **perception** of **/ view** on the practice architectures of site B (school) and site A (institute); perceived as either enabler (+) or constraint (-) for conducting PAR and for incorporating student participation.

Practice architectures **(arrangements and 'set-ups') enable and constrain interaction via**	***PST and school students*** **encounter one another amid practice architectures that enable and constrain their interactions**	***PST and teacher educators*** **encounter one another amid practice architectures that enable and constrain their interactions**
	Site B (teaching practice; class, school)	Site A (TE program/institute)
Cultural-discursive arrangements	- Observed results rendered sharing findings with SSs unnecessary Sharing findings with school students was not necessary because of the research topic; and also because change in the desired direction was already visible. - Research in school not viewed as important Research is not considered that important in school either. School is very academic, but not about research; nobody talks about research projects. - Lack of communication with subject coach No contact with the subject coach about the research.	+ *Teacher as researcher* well introduced through PAR task PAR is a good introduction to teacher research.
Material-economic arrangements	+ Results usable in own practice Usable result in the end. At the same time, research activities can also be used for own teaching (e.g. feedback from school students in the research can also be used for lessons [thus less conflict with curriculum]) - Finding shared problem is difficult Finding / choosing a topic that is a problem for both PST and school students was difficult, and took time. - Little opportunity in school for research Having only been able to do little in school; small research project, but have enjoyed that. - Packed curriculum; little time and space for research and SP IB curriculum at this school is so packed that there is hardly any space / time for research. Suggestion: allow more time for research. Not seen any opportunity (space) to discuss questionnaire results with school students.	- Extensive and time-consuming PAR task Good project, but be realistic about how much is possible. - Obligatory character of PAR task Teacher education program needs to recognize that research is a really big thing and maybe let PSTs choose whether to do that. - Packed curriculum; overlap of activities A combination of practice and an international internship is a lot; too little account is taken of what is going on (simultaneously) in the program - Lack of time for research More time would make PST enjoy research more.
Social-political arrangements	+ topic important for teacher Topic that really bothered PST - No colleagues as researchers No colleagues who do research - Lack of peer teachers' enthusiasm for research Fellow teachers at school not so keen on research; not inclined to join, make room for research. Easier if colleagues were more involved with research; if there were also an verbally expressed research attitude (as with [my school]).	- Theory-practice gap; weak relation school-institute Theory-practice gap Suggestion: stronger connection university-school (theory-practice)

Note: text in small font refers to conditions as paraphrased from the interview transcripts (originally in Dutch; translated by the authors): these were reformulated at a more generic level in analytical Step 3.