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Teachers' Self-Reports of Active Teaching Methods: The Relationship of Age and Subject

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Abstract

Estonian teachers believe in active teaching methods but do not use them as often as reported, experienced teachers use autonomy supportive and structured teaching methods more than beginning teachers. The aim of this study was to examine teachers' self-reports of their instructional methods – autonomy supportive and structured teaching, and explore its relationship with subject field and age. Two research questions were set: how teachers' self-report their instructional methods, and how subject and teachers' age is related with their self-reports about instructional methods. Data was collected from 670 self-reports from middle and high school teachers across Estonia. The results revealed that overall teachers self-reported high use of autonomy supportive and structured teaching methods, with some age and subject field variances. The results confirm previous findings about Estonian teachers' high self-reported active teaching methods – autonomy supportive and structured teaching. Further studies should be conducted to compare teachers' self-reports and their classroom practices in their lessons. This information can be useful to improve pre-service and in-service teacher education.

Keywords: Autonomy support; structured teaching; age; subject.

1. Introduction

Teachers in Estonian schools have very different historical and personal background which has an effect on their beliefs of work content and performance (Goodson, 2014). Several studies have found a relationship between teachers' beliefs and practices on effective learning (Sanders et al., 1997; Kuzborska, 2011). As teachers' behavior and words can affect students' learning behavior and academic engagement (Stefanou et al., 2004), studies have found student engagement to be highest when teachers use active teaching methods – autonomy supportive and structured teaching (Jang et al.,

2010; Vansteenkiste et al., 2012; Hospel & Galand, 2016). In an international comparative research the OECD Teaching and Learning International Survey (TALIS 2013), Estonian teachers indicated relatively low use of active teaching methods and it was in correlation with subject that they were teaching – humanities subject teachers used small group work the most, art and music teachers used project work more than other subject teachers, and mathematics and science teachers were least likely to use active teaching methods. Moreover, teachers with greater teaching experience were more likely to use active teaching practices than beginning teachers (Loogma, 2014). Majority of Estonian teachers acknowledge the importance of using constructive teaching methods, yet they do not use them often (Loogma & Talts, 2009; Loogma, 2014). As reported by TALIS 2008 the main argument why teachers' methods and beliefs vary is because of their individuality and professional background (Loogma, 2014). Similarly, Leijen and her colleagues (2014) found a big variety of favored pedagogies among Estonian teachers. Therefore, the aim of the study was to examine teachers' self-reports of their instructional methods – autonomy supportive and structured teaching, and explore its relationship with teachers´ subject field and age.

2. Theoretical framework of the study

2.1. Autonomy supportive and structured teaching

Several studies of teachers' instructional styles, namely autonomy supportive and structured teaching, have found a positive correlation between autonomy supportive and structured teaching with positive learning outcomes (Jang et al., 2010; Stroet et al., 2015, Poom-Valickis et al., 2016, Näkk & Timoštšuk, 2016). According to self-determination theory (Ryan & Deci, 2000) when teachers' promote students' need for autonomy, relatedness and competence it enhances students' learning engagement and contributes to their positive development.

Teachers' organizational methods to engage students in classroom learning can be divided into two ways: autonomy supportive or controlling and structure supportive or chaotic (Jang et al., 2010). Autonomy supportive teachers listen to students and answer to their questions more often, ask about students' emotional status and allow students to adjust task instructions and ideas (Reeve et al., 1999). When teachers understand students' goals, needs and interests, they can use those elements in planning learning activities which will further support the relevance of schoolwork to students (Assor et al., 2002). Jang et al. (2010) argue that autonomy supportive teachers nurture students' inner motives while controlling teachers rely on extrinsic motivational sources, i.e. higher grades, directives, consequences, autonomy supportive teachers also use flexible informational language to provide students with meaningful choices, options, explain task's value and benefit for students while refraining from pressuring ego-involving speech, and accept students' negative affect instead of trying to counter or change it.

The results of Assor et al.'s (2005) study confirm the negative affect on students' engagement styles and emotions, particularly increasing a-motivation, anger and anxiety, from controlling teachers' behavior, i.e. hindering open critical discussion in class, giving often commands and meddle with students' work pace. In contrast, autonomy supportive teachers do not use directives nor give solutions but provide clues to guide students in the right direction (Stefanou et al., 2004).

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As there is a lot of literature about fostering students' autonomy in the classroom, teachers might get the wrong idea of what are and what are not autonomy supportive methods since it is not equal with giving students minimal instructions and guidance and then expecting them to manage their study work on their own (Vansteenkiste et al., 2012). Another critical aspect is giving meaningful choices to students as it is an important factor to promote students' autonomy (Katz & Assor, 2007), however teachers might give too many or too complicated choices which causes students to avoid from making choices, choose at random or seek for someone's help in order to prevent negative outcomes (Iyengar et al., 2004).

Even though some authors oppose autonomy supportive and structured teaching as two separate dimensions where the removal of one grants the other (Vansteenkiste et al., 2012), many studies have found the two as mutually supportive dimensions for positive learning outcomes (Jang et al., 2010, Hospel & Galand, 2016). Structured teaching involves teachers' communication of clear expectations are the beginning of a lesson, strong guidance during the lesson, and constructive and informative feedback throughout the lesson according to Jang et al. (2010). Middle and high school students are more affected by structured teaching than primary school students as highly structured lessons predict higher student engagement (Poom-Valickis et al., 2016). Structured teaching also supports students to form a sense of control over learning outcomes (Skinner et al., 2008).

Teachers in Estonia use active classroom practices relatively less than their international colleagues (Loogma, 2014) which might be due to hesitation about how to use autonomy supportive and structured teaching methods in classroom settings (cf. Carini, 2012).

2.2. The effect of age and subject

Teaching is a profession which demands a lot from the person throughout the career (Santavirta et al., 2007) and across various cultures people who have chosen the teaching path have one thing in common – the passion to work with students (Watt & Richardson, 2008). A recent study by Guglielmi et al. (2016) examined teacher engagement in different age cohorts, their results showed main difference for younger teachers compared to other groups. Beginning teachers reported highest engagement and intrinsic work values, although they did not perceive social recognition as much as older teachers. Another study (Day et al., 2006) found that beginning teachers' main focus is on developing work efficacy and commitment, middle-aged teachers focus on balancing work and personal life while 25% of teachers become demotivated from their work, and high school teachers in their senior years lose work motivation even more. On the other hand, regardless of working age several studies (Lorente et al., 2014, Lee & Ok, 2015) have found strong correlation between work motivation and working conditions and resources. According to Assor et al. (2002) schools' resources and structure can limit teachers' chances to provide students with appealing and significant tasks.

Often the beginning years of teaching are seen as either sink or swim for the teacher, meaning that teachers do not focus as much on students and student learning but instead concentrate on themselves and frivolous classroom issues (Lavigne, 2014). This can refrain teachers from using active teaching methods which is relevant for Estonian teachers, as teachers with greater experience are more likely to use active teaching methods than young teachers. Also, the use of active teaching methods also depends on the subject, i.e. in Estonia teachers of humanities subjects use small group work the most

whereas mathematics and science teachers use project and small group work significantly less than other subject teachers, and teachers of creative subjects are more likely to use projects than any other subject field teachers (Loogma, 2014), however in Iceland and United Arab Emirates mathematics and science teachers are more likely to use small group work and in Croatia and Finland teachers of humanities are less likely to use project work (OECD, 2014). Still, the effectiveness of active teaching methods depends on their implementation in the lessons (Chang & Lee, 2010).

3. Method

3.1. Participants

For the data collection the systematic sampling was implemented. Questionnaires were sent to every eight school by students' population in each county of Estonia. All teachers of selected schools were asked about their instructional methods. In this study we selected self-reports of middle and high school teachers as a recent study by Poom-Valickis et al. (2016) found middle and high school students more affected by teachers' instructional methods than primary students in Estonian schools.

670 middle and high school teachers across Estonia who teach mandatory subjects according to the national curriculum self-reported their instructional methods. The average age of teachers´ was 47.37 and by age groups teachers divided as follows: 15% as beginners (up to 34 years old), 32% as middle-aged (35-49 years old) and 53% as seniors (over 50 years old). Majority of the participants (85%) were women. The average working experience was 22 years. Different groups of teachers participated in the study: 19% foreign language teachers, 14% mathematics teachers, 14% Mother Tongue and literature teachers, 13% science teachers, 12% art and music teachers, 10% social study teachers, 9% technology and 9% physical education teachers.

Teachers were divided in three age groups (namely beginners, middle-aged and seniors) based on a study of career activities (Van der Heijden, 2006) as it captures whole career period and allocates age groups in similar range.

3.2. Measures and procedure

Teachers questionnaire about autonomy supportive and structured teaching methods was used. The questionnaire consisted of 16 autonomy supportive and 6 structured teaching method arguments based on items on observation sheets about the same constructs (Jang et al., 2010). For example, the question "Offers challenging and skill relevant tasks" for autonomy supportive teaching and question "Gives constructive feedback to every learning activity" for structured teaching. Teachers answered to each argument on the scale of 1 (totally disagree) to 5 (totally agree). Summarized average scores were found for age groups of every subject field and divided into three types of instructional strategies: low reported usage of autonomy supportive or structured teaching (1-2), medium usage of autonomy supportive or structured teaching (3) and high usage of autonomy supportive or structured teaching (4-5).

3.3. Analysis

Data analysis consisted of two stages. In the first stage teachers were sorted by subject field and then divided in three age groups in each subject field. The second stage consisted of quantitative analysis.

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Teachers' self-reported data about autonomy supportive and structured teaching methods was summarized and each age group's average score in each subject field was found (Table 1 and 2).

4. Findings

The aim of this study was to examine teachers' self-reports of their instructional methods – autonomy supportive and structured teaching, and also explore its relationship with subject field and age. Based on the aim two research questions were set: how teachers' self-report their instructional methods, and how subject and teachers' age is related with their self-reports about instructional methods. Overall all teachers self-reported high usage of autonomy supportive (Table 1) and structured teaching methods (Table 2) with some age and subject variance.

4.1. The effect of age and subject on autonomy supportive teaching

Teachers' of all subjects and age groups self-reported high use (mean score 4-5) of most of the autonomy supportive and structured teaching arguments. Mathematics and science teachers from all three age groups reported medium use (3) of identifying students' interests and acknowledging them. Also, the score of using rewarding system, i.e. grades was medium for mathematics and art and music teacher groups. Teachers from all subject fields and age groups reported medium use of developing an understanding that students' behaviour and its results will be controlled, although beginners group of social subjects, technology, physical education and middle aged group of science teachers reported high use of this argument. Beginners group of Mother tongue and literature, mathematics, science, social subjects, beginners and middle aged group of technology, and middle aged and senior group of physical education teachers self-reported high agreement for having the right to decide as a teacher when the situation requires one certain decision. Beginners and senior group of physical education, middle aged and senior group of mathematics and senior group of foreign languages teachers reported lowest use of accepting negative emotions and reactions. Social subjects and physical education beginners' groups, most middle aged groups besides foreign languages and art and music teachers, also most seniors' groups besides Mother Tongue and literature, foreign languages and art and music teachers reported medium use of communicating demands and instructions as requests rather than commands.

Table 1. Mean scores of middle and high school teachers' (N = 670) self-reported autonomy supportive teaching

		Mother Tongue and literature	Foreign languages	Mathematics	Science	Social subjects	Art and music	Technology	Physical education
Identifies students' interests and acknowledges them	Beginners	4.5	4.1	3.9	4.4	4.5	4.3	4.6	4.2
	Middle aged	4.4	4.1	4	3.9	4.2	4.1	4.5	4.4
	Seniors	4.4	4.2	3.9	3.9	4	4.3	4.4	4.3
Creates pleasant learning situations	Beginners	4.7	4.9	4.7	4.8	4.9	4.8	4.9	4.4
	Middle aged	4.8	4.7	4.6	4.4	4.5	4.7	4.8	4.8
	Seniors	4.6	4.6	4.6	4.4	4.2	4.7	4.5	4.8
Encourages students' initiative	Beginners	4.9	4.8	4.3	4.7	4.7	4.7	4.9	4.6
	Middle aged	4.7	4.5	4.4	4.5	4.6	4.5	4.6	4.7
	Seniors	4.6	4.5	4.6	4.5	4.4	4.7	4.7	4.5
Offers challenging and skill-relevant tasks	Beginners	4.9	4.8	4.7	4.6	4.8	4.7	4.7	4.2
	Middle aged	4.7	4.5	4.7	4.4	4.8	4.7	4.8	4.5
	Seniors	4.6	4.6	4.3	4.5	4.7	4.7	4.7	4.6
Establishes clear demands and instructions for learning activities	Beginners	4.9	4.9	4.8	4.7	4.8	4.7	4.7	4.8
	Middle aged	4.7	4.8	4.6	4.8	4.8	4.8	4.8	4.8
	Seniors	4.8	4.8	4.1	4.8	4.6	4.8	4.7	4.7
Uses rewarding system to motivate students, i.e. grades	Beginners	3.9	4.1	3.8	4.4	4.3	3.7	4	4.3
	Middle aged	4.1	3.9	3.7	4.1	4.1	3.9	4.1	4.2
	Seniors	4.1	4.1	3.8	3.9	4.2	3.8	3.8	4

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(continued)

Table 1. (continued). Mean scores of middle and high school teachers' (N = 670) self-reported autonomy supportive teaching

		Mother Tongue and literature	Foreign languages	Mathematics	Science	Social subjects	Art and music	Technology	Physical education
Listens to students' opinions and questions carefully and openly	Beginners	4.8	4.8	4.8	4.9	4.8	4.8	4.8	4.3
	Middle aged	4.8	4.8	4.6	4.7	4.6	4.9	4.7	4.7
	Seniors	4.7	4.7	4.7	4.6	4.5	4.7	4.7	4.7
Stays constructive in the case of opposition with student or students group	Beginners	4.9	4.4	4.3	4.8	4.9	4.5	4.7	4
	Middle aged	4.5	4.5	4.2	4.2	4.7	4.4	4.6	4.2
	Seniors	4.3	4.3	4.3	4.4	4.4	4.5	4.5	4.2
Expresses understanding whether or not students' opinion differs from teachers'	Beginners	4.9	4.5	4.2	4.9	4.7	4.5	4.7	3.9
	Middle aged	4.7	4.6	4.3	4.5	4.6	4.7	4.5	4.3
	Seniors	4.5	4.4	4.3	4.2	4.5	4.4	4.5	4.3
Develops an understanding that students' behaviour and its results will be controlled	Beginners	3.7	3.8	3.8	3.9	4	3.6	4.1	4.2
	Middle aged	3.5	3.7	3.7	4.1	3.8	3.8	3.9	3.7
	Seniors	3.7	3.8	3.7	3.9	3.8	3.7	3.7	3.9
Creates an understanding that in a situation which requires one decision, the teacher has the right to decide	Beginners	4.0	3.6	4.1	4	4.3	3.8	4.2	3.8
	Middle aged	3.4	3.7	3.6	3.8	3.9	3.9	4.3	4.1
	Seniors	3.7	3.8	3.8	3.9	3.9	3.9	3.8	4
Presents learning material based on students' needs and interests	Beginners	4.9	4.6	4.3	5	4.7	4.6	4.7	4.3
	Middle aged	4.6	4.5	4.6	4.6	4.6	4.8	4.8	4.7
	Seniors	4.7	4.6	4.5	4.5	4.6	4.7	4.6	4.5

(continued)

Table 1. (continued). Mean scores of middle and high school teachers' (N = 670) self-reported autonomy supportive teaching

		Mother Tongue and literature	Foreign languages	Mathematics	Science	Social subjects	Art and music	Technology	Physical education
Offers extra help and guidance even if students were provided with necessary instructions	Beginners	4.7	4.5	4.1	4.8	4.4	4.1	4.7	4.2
	Middle aged	4.4	4.3	4.1	4.2	4.4	4.6	4.7	4.1
	Seniors	4.1	4.3	4.2	4.2	4.3	4.4	4.6	4.4
Communicates demands and instructions as requests rather than commands	Beginners	4.3	4.1	4.3	4.3	3.9	4.2	4.2	3.2
	Middle aged	3.9	4.1	3.7	3.7	3.8	4.1	3.8	3.8
	Seniors	4.2	4.1	3.8	3.8	3.9	4.2	3.9	3.5
Explains the importance and value of learning tasks	Beginners	4.6	4.6	4.6	4.7	4.5	4.3	4.7	4.6
	Middle aged	4.7	4.6	4.5	4.4	4.6	4.5	4.6	4.7
	Seniors	4.7	4.5	4.5	4.4	4.3	4.7	4.6	4.6
Accepts negative emotions and reactions	Beginners	4.6	4.3	4.1	4.6	4.5	4.5	4.6	3.7
	Middle aged	4.2	4.4	3.9	4.2	4	4.2	4.4	4
	Seniors	4.1	3.9	3.9	4	4.1	4.2	4.3	3.9

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Table 2. Mean scores of middle and high school teachers' (N = 670) structured teaching

		Mother Tongue and literature	Foreign languages	Mathematics	Science	Social subjects	Art and music	Technology	Physical education
At the beginning of a lesson explains what will happen in the lesson	Beginners	4.5	4	4.2	4.7	4.5	4	4.4	4.6
	Middle aged	4.5	4.4	4.4	4.5	4.5	4.6	4.7	4.7
	Seniors	4.7	4.5	4.4	4.5	**3.9**	4.7	4.7	4.7
At the beginning of a lesson explains what is expected from the students	Beginners	4.5	4	4.1	4.6	4.5	**3.9**	4.6	4.5
	Middle aged	4.5	4.5	4.4	4.4	4.6	4.5	4.7	4.6
	Seniors	4.5	4.4	4.2	4.3	4.7	4.6	4.7	4.6
Observes all students' activities in the lesson	Beginners	4.7	4.6	4.3	4.7	4.7	4.7	4.5	4.3
	Middle aged	4.6	4.6	4.5	4.2	4.5	4.7	4.7	4.7
	Seniors	4.6	4.5	4.6	4.3	4.4	4.5	4.6	4.6
Enables students to get extra help in learning activities	Beginners	4.5	4.3	4.3	4.7	4.5	4.4	4.1	4.5
	Middle aged	4.3	4.4	4.3	4.4	4.4	4.5	4.4	4.4
	Seniors	4.4	4.3	4.2	4.2	4	4.4	4.4	4.3
Gives constructive feedback to every learning activity	Beginners	4.3	4.2	4.1	4.4	4	4	4.4	4.3
	Middle aged	4.1	4.1	**3.8**	4	4.1	4	4.6	4.4
	Seniors	4.2	**3.9**	4	**3.8**	4.1	4.1	4.1	4
Feedback to students also involves suggestions for further development	Beginners	4.4	4.2	4.6	4.6	4.5	4.5	4.7	4.4
	Middle aged	4.3	4.3	4.2	4.3	4.3	4.3	4.8	4.5
	Seniors	4.3	4.2	4.2	4.2	4.4	4.4	4.5	4.4

4.2. The effect of age and subject on structured teaching

Structured teaching self-reported mean scores varied less than autonomy supportive teaching mean scores across subjects and age groups. Overall teachers of all subjects and age groups reported high usage (4-5) of most of structured teaching methods. Nevertheless, there were some variances. Seniors group of social subjects did not report high usage of explaining what will happen in the lesson at the beginning of the lesson. Beginners group of art and music teachers reported medium (3) usage for explaining what is expected from the students at the beginning of a lesson. Middle aged group of mathematics, seniors group of foreign languages and science teachers did not report high usage of giving constructive feedback to every learning activity.

5. Conclusions

Most of Estonian teachers acknowledge the importance of using constructive teaching methods, however they do not use them often (Loogma & Talts, 2009; Loogma, 2014). Although Estonian teachers have been found to have strong structured teaching (Loogma & Talts, 2009) which has been confirmed by observational data for primary teachers by Näkk & Timoštšuk (2015) and middle and high school teachers by Poom-Valickis et al. (2016). The aim of this study was to examine teachers' self-reports of their autonomy supportive and structured teaching methods, and explore its relationship with subject field and age.

The results confirmed previous findings of Estonian teachers' self-reports (Loogma, 2014). The mean scores for autonomy supportive and structured teaching were high thus there were no significant differences between different subject teachers nor age groups, although there were some variances.

Most mathematics and science teachers did not report high usage for identifying students' interests and acknowledging them which might be due to the nature of those subjects, although self-determination theory (Ryan & Deci, 2000) marks teacher's understanding of students' interests and needs as one of the critical aspects to enhance learning engagement and foster their positive development. Many groups of different subjects and ages, i.e. social subjects and physical education teachers, reported using a rewarding system to motivate students which implies they also rely on external sources of motivation (Jang et al., 2010). Majority of different subject and age groups do not always develop an understanding among students that their behavior and its results will be controlled, nevertheless three groups of younger teachers reported to always do that which confirms the finding (Lavigne, 2014) that younger teachers spend more time on classroom discipline than older colleagues. Likewise, most middle aged and senior groups of teachers reported not always taking the right to decide as a teacher when a situation needs one specific decision, thus older groups of teachers give more autonomy to the students (Lavigne, 2014; Reeve et al., 1999).

Autonomy supportive teaching together with strong structure in lessons predicts higher student engagement (Jang et al., 2010). While structure does not have as great impact in primary school, it does affect middle and high school students who have found to be more engaged in well-structured lessons (Hospel & Galand, 2016; Poom-Valickis et al., 2016). Teachers in this study reported high usage of structured teaching methods, with some arguments reported as medium usage.

Authors acknowledge limits of this study as teachers might respond in a socially accepted way and the results are applicable for Estonia, hence conclusions to larger audiences will not be drawn. Future studies on this topic could compare teachers' self-reports and their classroom practices in their lessons, also comparative studies of different subject teachers' autonomy supportive and structured teaching methods would provide a better understanding of how teachers from various subjects teach and engage their students. This information can be useful to improve pre-service and in-service teacher education.

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