Adaptation of the Teacher Professional Agency Scale in the Unique Cultural Context of Estonia

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Abstract
Teachers' work-related agency has scientific and practical significance. It is associated with redefining pessimistic projects and finding pleasure in the vocation. Measuring this phenomenon among teachers (*N*=686) in the culturally diverse education context of Estonia, where Estonian language of instruction and Russian instructional language schools historically co-exist, representing two various logics associated with transformation vs reproduction, may lead to valuable results for the advancement of the theoretical concept. The author suggests adapting an already existing tool used in another regional context and across other professional domains. The first measures and implications for further conceptualisation are presented.

Keywords: Professional Agency, Minority Teachers, Agency Scale, Cross-Cultural

Introduction

The concept of professional agency has been amply explored both theoretically and qualitatively (Smith, 2017; Goller, 2017) more than quantitatively in various domains and with diverse epistemologies. Meanwhile quantitative tools for measuring this construct have been implemented recently for the purpose of exploring multifarious vocational contexts (Goller, 2017; Vähäsantanen et al., 2019, 2020), where new inventions in support of teachers' work-related agency in particular situations have been highlighted mostly due to the endeavours of scholars from Finland (Pyhältö et al., 2015; Soini et al., 2016; Toom et al., 2017).

Sharpening the tool for measuring work-related agency across professional domains is still in progress (Goller, 2017) and one particular instrument may not suffice; meanwhile, inventing separate tools for each profession may lead to the proliferation of the concept, which will reshape the root theory in such a way that it loses its consistency and depth. Consolidating the methodology of measuring teachers' work-related agency has both scientific and applied significance. The scientific significance of cross-cultural validation and the adaptation of particular measures for teachers' professional agency, considering the specifics of diverse regional contexts, may assist in the development of the proper methodological toolkit for further advancement of the concept. The aim of the study was to adapt to the Estonian education domain an instrument for measuring the professional agency of teachers following the design proposed by Vähäsantanen et al. (2019). The mentioned professional agency scale utilised subject-centred sociocultural epistemology, emphasising transformative occupational agency, associated with proactivity and ‘job crafting’ (Goller, 2017), as well as with 'change, novelty and variety' or social morphogenesis (Archer, 2013). Tested so far only regionally (Vähäsantanen et al., 2019, 2020), the scale hadn’t yet been adapted to other contexts or validated in different cultural and structural affordances. The author proposes its adaptation in the unique cross-cultural educational context of Estonia, where two parallel education systems – schools with Estonian language of instruction (henceforth, Estonian schools), associated with a long period of transformation (Loogma et al., 2013), and schools with Russian instructional language (henceforth, Russian schools), reflecting a logic of reproduction – historically co-exist.

The Russian-speaking community in Estonia is quite large (26% of the total population at the moment, Statistics Estonia, 2021). It is mostly served by the Russian schools, which contribute to ‘parallelism’ of the education system. Teachers of these schools are associated in political, media and scientific discourses with using ‘Soviet methods’ (Lindemann & Saar 2012; Zaichenko, 2021), having low levels of national language, therefore being cut off from the professional development; and the graduates of such schools continue to take disadvantaged positions in the labour market. Additionally in the PISA international assessment the Russian-speaking students show weaker results than the students from Estonian schools at the national level (one academic year lower in all domains, according to MoER (2019). Today, the number of Russian schools is falling due to various structural factors (see also Vihalemm et al, 2020): there are 24 monolingual (using only Russian) and 78 bilingual schools teaching in both national and the Russian languages (4.8% and 15% respectively of the overall number of schools nationally).

A professional agency multidimensional construct was validated between the two samples – teachers of both types of schools – via EFA (Vähäsantanen et al., 2019), the factor structures were compared between two samples and the reliability of the scale and its subscales was

tested on each sample. Convergent validity was tested by computing Pearson correlations of agency scale with other theoretically substantiated constructs (Goller, 2017; Pyhältö et al., 2015). Finally, teachers' agency on two dimensions, 'Influencing at Work' (IW) and 'Developing Work Practices'(DWP), was compared between the groups using an independent-samples *t*-test. The study focuses on exploring and validating the mentioned methodological tool across two contrasting cultures, and provides the first measures of teachers' work-related agency in Estonia (which had never been measured before).

Teacher agency quantitative measurements and instrument choice

In various research projects, teachers' work-related agency was measured either through constructs highly associated with the concept (Song et al., 2020), such as self-efficacy and autonomy, or in specific situations, such as 'learning', 'in the classroom', 'in the community' and 'decision-making' (Liu, et al., 2016), as well as among particular samples, e.g. student teachers. Following the 'logic of social transformation' (Archer, 2013), in which teachers are seen as 'corporate agents' (ibid.), these measures promote 'extended professionality' (Evans, 2008, 11), where teachers exhibit 'wider vision' (ibid.), sense of community (Schuster et al., 2021) and the ability to be 'reciprocal collaborative learners' (Soini et al., 2016), constantly re-negotiating their own work identity in pursuit of 'morphogenetic scenarios' (Brock et al., 2016, 89). However, teacher professional agency has never been measured as a general behavioural phenomenon that is situationally present in teachers' work life, manifesting itself as a *modus vivendi*, acknowledging their socio-occupational satisfaction, open-mindedness to collaboration and ability to be heard in the decision-making arena.

For this study, a quantitative tool proposed by Vähäsantanen et al. (2019) was utilised. This tool measures teachers' agency as a behavioural action-based phenomenon theoretically connected with the subject-centred sociocultural approach (Eteläpelto et al., 2013). Such an approach results in a combination of the social realist concept of agency (Archer, 2013) and socio-cultural theories (Stetsenko, 2019) which emphasise the importance of the socio-cultural context's inseparability from individual agentic action, and the subject-oriented suggestion which takes into account individuals' subjectivity and intentionality (Billet, 2011). Measures proposed by Vähäsantanen et al. (2019) suggest that professional agency is manifested in actions which are the results of internal choices and situational stances, although they are defined by workplace affordances which enhance opportunities (1) to make organisational decisions on both individual and collective levels, (2) to present one's own ideas, which are heard and considered by the community's inside organisations, and (3) to participate in shared cultural practices, which in an ideal scenario lead to (4) transforming the work milieu, termed 'transformative agency' (Stetsenko, 2019), always resulting in the implementation of innovations. All of these dimensions of action-based and contextually embedded agency (Vähäsantanen et al., 2019) lead to a variety of professional situations in which an agent constantly re-negotiates and renews her own vocational *modus vivendi*.

Purpose of the study

On the basis of the aspects outlined above, the study aimed at:
(1) refinement and validation of the TPA-scale (Vähäsantanen, et al., 2019) in the context of Estonian education system;
(2) examinations of differences in cross-cultural adaptation of the TPA between teachers in Estonian (EST sample) schools and Russian (RUS sample) schools.

Methodology

The participants

Data was gathered in the framework of the comparative survey 'Teacher 2021', conducted by the Centre for Innovations in Education of Tallinn University in January-March 2021. The survey questionnaire included 55 sections focusing on eliciting teachers' perceptions of various aspects of their profession. Participation was voluntary and anonymous. All schools in Estonia were offered the chance to participate. The survey was delivered through the LineSurvey platform. Each participating school received an individual link to the web questionnaire, in Russian or Estonian, as chosen by the teacher, and took around 20 minutes to complete. The sample of the survey included 2 050 teachers from 79 schools around Estonia with Russian (n = 10) and Estonian (n = 69) languages of instruction. The breakdown of the teachers was as follows: 1 707 teachers from the EST sample (83.0%), 343 teachers from the RUS sample in Estonia (17.0%). Both samples corresponded to the total population of teachers for both types of schools in Estonia and therefore were representative (Cook et al., 2000) (Tables 1-3).

Tables 1-3. Participants characteristics by samples

Age Group Count (%)		
	Estonian	Russian
< 30	44 (12.8)	16 (4.7)
30 - 39	67 (19.5)	51 (14.9)
40 - 49	89 (25.9)	87 (25.4)
50 - 59	84 (24.5)	115 (33.5)
60 - 69	51 (14.9)	67 (19.5)
> 70	8 (2.3)	7 (2.0)

Table 1.

Subject Taught Count (%)		
	Estonian	Russian
Math, Physics, Chem	55 (16.0)	46 (13.4)
STEM (Bio, Geo)	27 (7.9)	24 (7)
Humanities	161 (46.9)	140 (40.8)
Sports, Art	28 (8.2)	65 (19)
Other	72 (21)	68 (19.8)

Table 2.

	Median Age Group (%)	Median Income	Gender % Female	Mode School Size
Estonian	40 – 49 (25.9)	€1100-1200	82.8	500
Russian	50 – 59 (33.5)	€1100-1200	90.1	900

Table 3.

Development of the instrument

As a TPA-scale, an instrument proposed by Vähäsantanen et al. (2019) utilising a 'subject-centred' transformative perspective was chosen, with the aim of exploring teacher agency 'on the level of action', in work-related settings. The 17-item instrument (Vähäsantanen et al., 2019) was used as a starting point, discussed for clarification of meanings in a focus group of researchers (*N* = 4), reformulated according to the complexity of the teaching profession, drawing on already elaborated formulations (Toom et al., 2017; Goller, 2017), and translated into Estonian and Russian. After the first pilot study among the teachers of the EST sample (*N*=58), the scale was reduced to 12 items because some items reflecting subjects' commitments to their work values (see for details Vähäsantanen et al., 2019) didn't load as separate factors and showed low reliability coefficients. As the scale was meant to be a part of a combined multi-sectional questionnaire, there was a need to keep it concise and the decision was made to include only the 12 items which showed high reliability and communality. These items were repeatedly revised and again translated into both languages, with the application of back-translation. This version was piloted among a group of teachers (*N* = 25), then discussed among the researchers regarding content validity, and the 12 final items (*Table 4*) were approved along the dimensions initially proposed by Vähäsantanen et al. (2019): 'Decision Making at Work', 'Being Heard at Work', 'Participation in Shared Work Practices' and 'Transforming Work Practices', which were combined later into the 'IW' (composite reliability 0.75) and 'DWP' (composite reliability 0.74) dimensions (ibid.). The final instrument was used with a seven-point Likert scale (from 1 = 'strongly disagree' to 7 = 'strongly agree').

Measures

Three scales included in the study were utilised to measure convergent validity. All scales were used in this composition for the first time and their reliability was tested in the survey 'Teacher 2021'on the whole sample (*N* = 2 050).

Decision-Making (DM) Scale

The Decision-Making Scale was used following theoretical assumptions from previous studies (Goller, 2017) that the manifestations of agency are highly associated with 'building capacity in contextualised decision making' (Simpson et al., 2018) in the workplace. Three items measure teachers' active participation in school development planning, rated on a three-point Likert scale (from 1: not acquainted with the programme to 3: participated in elaborating): Cronbach α = 0.71 (reliability α = .68 on the RUS sample, inter-item correlation *r* = .43; reliability α = .68 on the EST sample, inter-item correlation *r* = .43).

Job Satisfaction (JS) Scale

Following Vähäsantanen et al.'s (2019) procedure, who used the 'Emotionally Meaningful Work' scale, in this study the 'Job Satisfaction' construct was used to test convergent

validity. Although these concepts are different, they both represent phenomena which emerge 'from individuals' emotional experiences' (ibid.), and in previous studies (Skaalvik & Skaalvik, 2021) job satisfaction was found to be positively correlated with teachers' motivation and occupational commitment; therefore, a positive relationship between job satisfaction and agency was expected. The scale measures teachers' satisfaction with their work content and the environment using three items, rated on a seven-point Likert scale (from 1 – Not satisfied at all to 7 – Very satisfied): Cronbach α = 0.73 (reliability α = .74 on the RUS sample, inter-item correlation *r* = .49; reliability α = .72 on the EST sample, inter-item correlation *r* = .46).

Collaborative Learning (SL) Scale

Similarly, following Vähäsantanen et al. (2019), it was expected that the agency scale would be positively associated with collaborative teaching and learning. The authors of the Finnish study used the similar 'Learning at Work' construct, emphasising that work-related learning occurs through collaboration and active interactions (Pyhältö et al., 2015), as well as sharing competencies and professional co-construction activities among teachers (Schuster et al., 2021). The scale consisted of four items measuring teachers' pro-active collaborative strategies in their teaching practices; it was rated on a seven-point Likert scale (from 1: doesn't look like me at all to 7: looks exactly like me): Cronbach α = 0.72 (α = .75 on the RUS sample, inter-item correlation r = .43; α = .72 on the EST sample, inter-item correlation r = .39).

Data analysis

Validation of the 12-item agency scale was performed separately on the RUS and EST samples. First, an exploratory factor analysis was conducted using IBM SPSS Statistics 26 to determine the factor structure. The obtained factor structures on the two samples were compared with each other, and with the results of Vähäsantanen et al. (2019). Afterwards, the reliability of the scale and subscales was tested on each sample. Convergent validity was tested by computing a Pearson correlations of agency scale and its subscales with scores on DM, JS, and CL. Differences in the levels of the professional agency of teachers in Russian and Estonian schools were tested using an independent-samples *t*-test, with *School Type* as the independent variable, and *Agency* as the dependent variable. After that, a multivariate analysis of variance (MANOVA) was performed, with *School Type* as an independent variable, and *IW and DWP* as dependent variables. A random subsample of the EST sample matching the size of the RUS sample (*n*=343) was used for all analyses.

Findings

TPA Factor Structure (RUS sample)

The twelve items of the agency scale (*Table 4*) were included in the EFA to determine the factor structure. As there were non-normally distributed items (according to histograms and Kolmogorov-Smirnov tests, p < .001; Fabrigar et al., 1999), as well as following the procedure of Vähäsantanen et al. (2019), the principal axis factoring method was used.

The data was appropriate for factor analysis. The sample size (*N* = 343) was adequate for the factor analysis of twelve items (Tabachnick, & Fidell, 2007, pg. 613). There were many inter-item correlations higher than *r* = .30. The Kaiser-Meyer-Olkin measure of sampling adequacy

was .85, higher than the recommended value of .60 (Kaiser, 1974). Bartlett's test of sphericity (Bartlett, 1954) was statistically significant, as recommended ($p < .001$).

With the principal axis factoring, three factors with eigenvalues higher than $\lambda = 1.00$ were revealed, explaining 60.97% of the total variance. According to the Scree plot (*Figure 1*), it seemed, however, more appropriate to keep the two factors (Cattell, 1966). Additionally, the three-factor solution was not interpretable, as it included four cross-loadings.

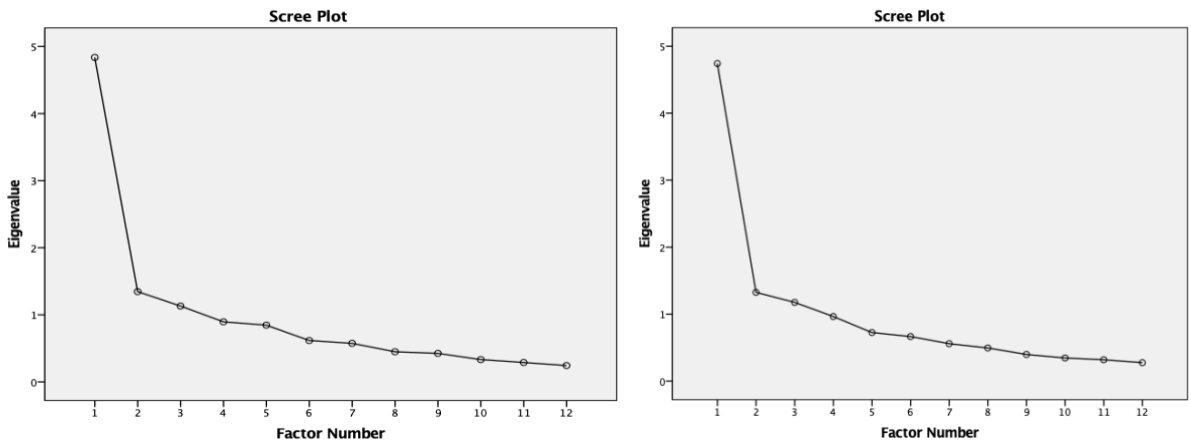

Figure 1. Scree plots, RUS (left)/ EST (right) samples

Two retained factors explained 51.5% of the total variance: the first one 40.3%, and the second one 11.2%. The most meaningful solution was found using a Varimax rotation, which supported the fact that the two factors were correlated (r = .60). Most of the items had communalities after extraction higher than .40, showing that they correlated to the other items. The exceptions were (see *Table 4*) item 3 and item 12, with communalities lower than .06. Additionally, their factor loadings on both factors were lower than .32, so they were excluded from further consideration (Tabachnick, & Fidell, 2007).

According to Table 4, there were seven items with higher loadings on the first factor, and three items with higher loadings on the second factor. Except for the two rather obvious cross-loadings (items 8 and 9), the factor structure was clear and interpretable, showing that there were two latent dimensions underlying the concept of agency among Russian teachers in Estonia. The factors resembled two of the three factors found in the study of Vähäsantanen et al. (2019), and they were named after them. The first factor was, therefore, named ‘Influencing at Work’ (IW), which includes ‘Decision Making’ and ‘Being Heard at Work’. The second factor was named ‘Developing Work Practices’ (DWP), which involves ‘Participation in Shared Work Practices’ and ‘Transforming Work Practices’.

Factor structure of the Agency scale (EST sample)

The results of the factor analysis on the agency scale for Russian teachers were compared with the results for the Estonian teachers to evaluate the stability of the factor structure. The same steps were performed. Specifically, the principal axis factoring method was used, along with a Varimax rotation. This sample was adequate for the factor analysis procedure (N = 343; Tabachnick, & Fidell, 2007, p. 613). Many inter-item correlations were higher than r = .30. The KMO measure of sampling adequacy was .85, while Bartlett’s test of sphericity was significant ($p < .001$).

Three factors with eigenvalues over λ = 1.00 were revealed, and they explained 60.4 % of the total variance. However, according to the Scree plot (*Figure 1*), due to the low interpretability of the three-factor solution, and inconsistency in the analysis on the sample of Russian teachers in Estonia, only the first two factors were kept. These two factors explained 50.6 % of the total variance, with the first one explaining 39.5 %, and the second one explaining 11.1 % of the variance. The majority of the items had communalities over .40 after extraction. As in the analysis on the first sample, items 3 and 12 had extremely low communalities, and were excluded from further analysis.

As shown in Table 4, five items loaded predominantly on one factor, and five items on the other. Except for the three cross-loadings (items 8, 10 and 11), the factor structure was interpretable. The obtained factor structure was also similar to the factor structure in the first sample, except for items 8 and 9, which loaded predominantly on a different factor. Accordingly, factor 1 in this sample could also be called 'IW', and factor 2 'DWP'.

As items 8 and 9 had obvious cross-loadings on the first sample, it was worth rethinking the final factor structure, i.e. the construction of the subscales of agency. First, item 9 was similar to the item 'I actively bring up my opinions in the work community' from the study of Vähäsantanen et al. (2019), which was grouped with the factor 'DWP. Therefore, although on the first sample it was with the items from the factor 'IW, the final decision was to put it in 'DWP', as in the Estonian teachers' sample.

Item 8 was, however, more ambiguous, as a similar item was not found among the items in the study of Vähäsantanen et al. (2019). It was created following Goller's (2017) 'proactive personality' construct. As it refers to offering new, unique solutions in specific, complex situations, it was decided to put it in 'DWP'. The final version of the scale included 10 items (Table 4), five in each dimension as follows: 'Influencing at Work': items 4, 5, 6, 7, 11; 'Developing Work Practices': items 1, 2, 8, 9, 10.

Item	Factor (RUS sample)		Factor (EST sample)	
	1	**2**	**1**	**2**
1. I actively speak or comment at my school on work-related issues	.305	**.707**	**.799**	.242
2. If innovations are planned at school, I definitely want to be involved in deciding on them	.202	**.861**	**.723**	.205
3. I cannot decide for myself which textbooks and study materials to use in my work (reversed)	.100	-.019	.080	.233
4. School management takes into account my wishes and suggestions regarding the organisation of work	**.727**	.200	.136	**.690**
5. Other teachers are always attentive to my views	**.726**	.268	.267	**.616**
6. I decide which teaching methods and techniques to use in my teaching	**.568**	.258	.209	**.524**
7. When I express my views, they are taken seriously	**.833**	.125	.297	**.726**
8. I always offer my own solutions in difficult professional situations	**.502**	.422	**.595**	.428
9. I always express my opinions in work teams	**.498**	.487	**.771**	.213
10. I like to experiment with new teaching methods and techniques	.280	**.413**	**.371**	.350
11. I have every opportunity to steer my school life for the better	**.565**	.266	.331	**.605**
12. For me, the teaching methods that have proved their worth over time are suitable, rather than the constant pursuit of new ideas	.120	-.207	-.114	-.058

Table 4. Rotated factor matrix obtained with principal axis factoring with varimax rotation, RUS/EST samples (12-items initial scale)

Reliability

The internal consistency of the initial 12-item agency scale was α = .80 on both samples. After excluding items 3 and 12, the Cronbach coefficient increased to α = .88 among RUS sample, and to α = .87 among EST sample, which justified excluding these two items during EFA. The average inter-item correlation was *r* = .42, i.e. *r* = .40.

The internal consistency of the 'IW' subscale, involving items 4, 5, 6, 7 and 11 was α = .83 among Russian teachers, and α = .80 among Estonian teachers (inter-item correlations *r* = .51, i.e. *r* = .46). The reliability of 'DWP', including items 1, 2, 8, 9 and 10, was α = .80

among Russian teachers, and α = .83 among Estonian teachers (inter-item correlations r = .45, i.e. r = .50).

Convergent validity

As shown in Table 5, there were weak and moderate positive correlations of DM-scale with TPA-scale and its subscales among the RUS teachers in Estonia. DM-scale was correlated moderately with 'DWP' and showed weak correlation with 'IW'. There were moderate to high correlations of JS-scale with agency and the 'IW' dimension, and a somewhat lower correlation with 'DWP'. Finally, CL-scale was moderately associated with TPA, with a somewhat stronger relationship with 'DWP' than with 'IW'.

Scale / Subscale	**1.**	**2.**	**3.**	**4.**	**5.**	**6.**
1. Agency	1					
2. IW	.90/.88**	1				
3. DWP	.90/91**	.64/59**	1			
4. DM	.27/32**	.20/29**	.30/34**	1		
5. JS	.50/50**	.55/61**	.36/30**	.09/16	1	
6. CL	.35/35**	.26/23**	.37/37**	.17/19**	.19/17**	1

Table 5. Convergent validity of the TPA-scale and its subscales, RUS/ EST samples
** Correlation is significant at the 0.01 level (2-tailed), N = 343 (both samples)

With the EST sample there were still weak but somewhat stronger correlations of DM with the agency dimensions. JS-scale correlated more strongly with the 'IW' dimension, and moderately with 'DWP'. The relationships of CL-scale with the TPA variables were the same as on the previous sample.

Differences in levels of agency between the samples

According to the results of an independent samples t-test, there were statistically significant difference between teachers in Russian and in Estonian schools in levels of agency dimensions 'IW': t (686) = 3.63, p < .001 and 'DWP': t (686) = 4.22, p < .001. Teachers from both types of school had relatively high levels of agency (*Table 6*).

	School type					
	Russian		**Estonian**		**Total**	
	Mean	SD	**Mean**	SD	**Mean**	SD
Agency	**5.27**	.749	**5.23**	.780	**5.25**	.764
Influencing at work	**5.29**	.827	**5.51**	.792	**5.40**	.817
Developing work practices	**5.25**	.829	**4.96**	.958	**5.11**	.907

Table 6. Descriptive statistics of TPA-scale and its dimensions for RUS/EST teachers
SD, standard deviation

Before performing a multivariate analysis of variance, the assumptions were tested. The sample size was adequate, as there were more cases per cell (n = 343) than the number of dependent variables (two). The assumptions of univariate and multivariate normality were not violated, as both IW and DWP had histogram distributions close to a normal distribution for both levels of *School Type*. Only eight multivariate outliers were found. The relationships between IW and DWP were relatively linear for each group of teachers. The assumption of the absence of multicollinearity was not violated, as the Pearson correlation of the two dependent variables was not very high: $r = .57$, $p < .001$. The assumption of the equality of covariance matrices was not violated, as the significance of Box's M was $p = .002$, which was higher than the threshold of $p = .00$ recommended by Tabachnick and Fidell (2007). Finally, the variances of IW were not unequal but the DWP was unequal across the two groups, according to the Levene test ($p = .541$, i.e. $p = .015$), and thus the t-test significance was evaluated for unequal variances. According to the results of the multivariate tests, *School Type* had a significant effect on the linear combination of IW and DWP: Wilks' $\lambda = .897$, $F(2, 686) = 39.16$, $p < .001$, partial $\eta 2 = .103$. According to the results of tests of between-subject effects, *School Type* had significant effects on IW: $F(1, 686) = 13.18$, $p < .001$, partial $\eta 2 = .019$ and DWP: $F(1, 686) = 17.79$, $p < .001$, partial $\eta 2 = .025$.

As shown in Table 6, IW was higher for the teachers at Estonian schools, while DWP was higher for the RUS sample. Following Vähäsantanen et al.'s (2019) logic, the items in the DWP dimension reflect the constructs connected with 'participation in' and 'transforming of' work practices, either collaboratively or individually through proactive, 'transformative' agency. Conversely the IW dimension reflects occupational autonomy and affordances for being heard by the closest community at work. The dimension not only measures personal capacity in creating novelties but also workplace opportunities and environmental enablements for such commitments. Possible explanations of such measure results are discussed in the following section.

Discussion and Conclusions

The study aimed at the modification, adaptation and validation of the professional agency measurement tool proposed earlier by Vähäsantanen et al (2019), validated so far only regionally in Finland (Vähäsantanen et al, 2019, 2020), with application to the modern Estonian education context, which combines two contradictory cultures (Vihalemm et al., 2020) and is distinct in its parallelism due to the quite weak socio-cultural integration of the majority and minority schools in a single national schoolscape. The validation of a tool and applying it to measure teachers' work-related agency in Estonia's unique cross-cultural context suggests valuable outcomes for operationalisation of the concept internationally. As the education context of Estonia offers a clear example of the morphogenetic and morphostasic contradistinction where, due to various cultural and structural complexities, majority and minority teachers may externalise their occupational identities (Eteläpelto et al., 2013) in a multidirectional logic of creative transformation versus cultural reproduction (Archer, 2013), the author validated and applied the same domain-specific instrument crafted from the cross-domain tool of Vähäsantanen et al. (2019) to the two 'cultures of teachers' separately. The scale was cross-culturally adapted through translation and back-translation, expert feedback, pilot testing, and scale refinement to provide evidence for the content validity of the scale. Validation across the two groups of teachers showed a stable two-factor structure of the agency construct among the teachers in Estonia, consistent with the factor structure of this scale across various professional domains in Finland (Vähäsantanen et al., 2019). The limitation was that items 8 and 9 (Table 4) loaded on both factors with the

Russian sample, and only on DWP with the Estonian sample. Following the factor structure in the study of Vähäsantanen et al. (2019), there was also a strong enough reason to join these two items on the DWP dimension for the Russian sample. As EFA is a theory-driven analysis and the author was guided by the preliminary studies, the factor solution seemed clear for measuring the *DWP* dimension. However, there is a need for further support of this factor structure among minority teachers, which would require a larger sample of Russian teachers in Estonia in future research, qualitative studies (such as focus groups and in-depth interviews), and a possible need for a more systematic scale translation in Russian (Wang et al., 2006).

The validity of the scale was supported by finding positive correlations with decision making, job satisfaction and collaborative teaching and learning. However, the author used the particular scales included in the survey 'Teacher 2021', which restricted the methodological repertoire. The internal consistency coefficient of the DM-scale was somewhat below the recommended threshold value, and therefore there is a need to revisit the convergent validity of the TPA-scale using some already established decision-making scales previously validated on the sample of teachers (Sheppard & Levy, 2019). Additionally, the JS-scale consisted of only three items. It is unclear whether the correlation coefficients with the TPA-scale and its subscales would differ if some longer internationally used scales which capture perceptions on more aspects of workplace affordances were utilised for validation. Collaborative learning measures may be further utilised from scales proposed earlier by Pyhältö et al. (2015).

Overall, the study contributed to the validation of the agency measurement instrument proposed by Vähäsantanen et al. (2019). However, there is a strong need to reconsider its validity in various cultural contexts, and with a more systematic scale-translation approach.

The analysis indicated there was a statistically significant difference in TPA levels between the teachers in the Russian and Estonian schools. Specifically, Estonian teachers scored higher on IW, and Russian teachers scored higher on DWP. These differences may be due to the fact that these two groups of teachers are culturally distinct and their workplace opportunities may not only be distributed unevenly, but also be perceived differently. While IW represents teachers' perceptions of such contextual affordances as the ability to be heard by colleagues and school management and a degree of latitude in making work-related decisions both in the class and in the school generally, the DWP is highly associated with teachers' sense of community and the ability to reach transformative solutions, including making them in teams, as well as the perceived freedom to speak up with colleagues. However, both communities' organisational agency has so far scarcely been explored, and this result in some ways contradicts previous literature, where it has been found that teachers from Russian schools prefer more traditional methods in classrooms, teacher-centred practices and direct instruction (Suviste et al., 2017), as well as being used to a hierarchical organisational leadership style (Kestere et al., 2020). The exercise of agency by minority teachers (Kiilo and Kutsar, 2013) may be constrained by their uncertain knowledge of the national language, which may limit their optimism compared with their Estonian counterparts. The RUS sample's higher mean scores on the DWP dimension in this light requires further exploration, with the application of qualitative methods, and can at this point be explained by the favourable school cultures of the particular schools participating in the survey. As Vähäsantanen et al. (2019) also mentioned, these theoretically based dimensions overlap and multi-layered triangulated data is needed to interpret such complex context-dependent phenomena more precisely. The general level of professional agency in both samples was quite high, with minor differences between them but, as this was the first

measuring of this work-related construct among the teachers in Estonia, other cultural and structural ‘organisational suggestions’ (Billet, 2011) of the schools participating in the study should be taken into account both regionally and internationally, as was mentioned by Vähäsantanen et al. (2019, 2020).

Main limitation of the study is that the schools were chosen on the basis of convenience sampling, meaning they themselves defined their participation, which is not a rigorous sampling technique for the quantitative method. Also, the participating schools were motivated to take part in the survey by the opportunity to be anonymously compared at the national level, and therefore we may assume these schools might have been distinct in terms of occupational affordances and agency-promoting environments.

Implications for further research

Further conceptualisation of occupational agency among teachers in cross-cultural contexts should take into account not only the transformative ‘situational logic of opportunity’ but also the ‘logic of reproduction’ (Archer, 2013). Further refinement of the TPA scale in ethnically diverse contexts may include more items related to the cultural values of teachers and their adherence to them in their teaching strategies, as well as their perceptions of community cohesion and institutional beliefs about their roles. The qualitative difference between majority and minority cohorts of teachers may be quite significant here, which can be explored further with the application of qualitative methods, as Vähäsantanen et al. (2020) have mentioned. The author believes that the study contributes to the theoretical knowledge and methodological advancement of the agency concept in diverse education contexts.

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