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Forms of Capital among Arab and Jewish K-12 Teachers: Development of 'Capital Scale'

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Abstract

The present study aimed to demonstrate how the mixed methods approach was used to develop and validate a quantitative instrument for measuring forms of capital (a "Capital Scale") among K-12 teachers, using the two-phase approach of an exploratory sequential model. The study includes: (1) a qualitative phase based on 16 semi-structured interviews with teachers; (2) quantitative exploratory and confirmatory factor analysis among Israeli Jewish teachers and measurement equivalence analyses of data among Israeli Jewish and Israeli Arab teachers, as two ethnic groups, confirmed the scale's cross-cultural validity. The study contributes to the development of a new instrument for measuring teachers' capital, illustrating the benefit of triangulated methods in a study of participants from different ethnic backgrounds.

Introduction

The "capital" concept is well-established, both theoretically and empirically (see for example Bourdieu, 1986; David & Rizk, 2018; Huppatz & Goodwin, 2013; James & Grenfell, 2014). Capital is commonly defined as divers assets or resources that are used and activated across different fields (Moore, 2008). While the term "capital" is extensively discussed in the literature, we found little evidence of an instrument that could help to examine diverse types of capital, and that might be able to reveal their relative significance in a given context, situation, or social group with educational settings.

In addition, much of the literature focuses on parents' or students' capital, while the data regarding teachers' capital is scarce. Due to the importance of understanding how teachers apply their resources during their work, it is crucial to develop an instrument that can measure specific forms of teachers' capital that can be used in diverse sociocultural contexts. Developing a measurement instrument for teachers' forms of capital can elaborate research options for further studying capital as a variable that can both be influenced by (i.e. dependent variable) or have an influence on (i.e. independent variable) other variables. Integrating qualitative and quantitative methods in one research can significantly contribute to the validation of the measurement instrument as proposed by Luyt (2011) and Onwuegbuzie et al. (2010), and has been demonstrated by studies that validated different instruments using mixed-methods research (Daigneault & Jacob, 2014; Taghipoorreyneh & de Run, 2020). The purpose of the present study was to use of mixed methods for developing and validating a qualitative instrument to measure different forms of capital among K-12 Jewish and Arab teachers in Israel.

Theoretical Framework

What is Capital?

"Capital" functions as a social attitude within an exchange system, and is a resource or assets that is a source of power. The term "capital" as described by Bourdieu should be defined and discussed "in a wider system of exchanges whereby assets of different kinds are transformed and exchanged within complex networks or circuits within and across different fields" (Moore, 2008, p. 102). Different aspects of capital thus provide a basis for understanding the structure and dynamism of various societies (Bourdieu & Wacquant, 1992) and the capital individuals possess within a given society have implications for their social position and status.

Bourdieu (1986) refers to four different forms or types of capital that one must possess in order to win full acceptance in a specific community: *economic capital* refers to the material resource level that can be converted immediately and directly into money. This capital is used to mark ownership of property and finances. It can be measured, transferred to another, and determines the status of a person in the economic field; *cultural capital* refers to the institutionalized, embodied, and objectified capital one must possess in order to enter and become part of a society; *social capita*l refers to the connections and social ties in social groups and institutions by participation in formal and informal practices; *symbolic capital* refers to the individual capacity to satisfy the authorities who sanction or authorize. This resource is available to an individual on the basis of honor, prestige, or recognition, and serves as the value that one possesses within a culture.

Generally, capital is a resource that individuals accumulate and which is valuable in defined situations and specific fields (Bourdieu, 1979; Bourdieu & Passerson, 1990; Moore, 2008; Thomson, 2008) and thus can be regarded as context-dependent. One can thus understand the forms of capital only by relating to the sociocultural context (Farkas, 1996; Lareau, 2000; Lareau & Horvat, 1999). Relatively few studies focus on the context of the field in which some resources are considered valuable (Lareau, Evans, and Yee 2016; Schneidhofer, Latzke, and Mayrhofer 2015). The teaching occupation can be seen as a field characterized by particular features (Atkinson, 2009), and teachers' possession and activation of those resources is likely to impact on their work and influence their position in school.

The Importance of Capital in Teachers' Work

Although the concept of capital has been extensively researched, with an affinity to the education sphere and stratification processes in the schooling system (Grenfell et al., 1998; Lareau & Weininger, 2003; Reay et al., 2011), only a few studies have explored the forms of capital that influence teachers' work processes (Tamir, 2010). One research looked at capital types as affecting school leadership and contributing to the motivation of principals and teachers for advancing change processes (Spillane, Hallett, and Diamond, 2003). Another study dealt with the forms of capital as a resource with which teachers can cope with patterns of parents' involvement in school (Addi-Raccah & Grinshtain, 2012). Other works have studied specific forms of capital (see for example Addi-Raccah, 2012; Ortiz, 2001). Following the direction of focusing on specific forms of capital, it is worth mentioning the book *Professional Capital* written by Hargreaves and Fullan (2012). Professional capital in the educational

context emphasizes human resources in the teaching profession, and features three components: human capital, social capital, and decisional capital. Combining these components is "essential for transforming the teaching profession into a force for the common good" (Hargreaves & Fullan, 2012, p. 88). In addition, among the different forms of capital, special attention was given to cultural capital that has been extensively discussed and studied in the educational field (Bourdieu, 1986; Lareau & Horvat, 1999; Robertson, 2000). Finally, social capital was also among the central forms of capital found to be relevant in educational contexts (Acar, 2011) and for teachers' work (e.g., Yoon, et al. 2017; Nolan and Molla, 2017). As these forms of capital were found to be central in the educational field, and suggest the importance of capital for teachers' work, an exploratory direction of research is needed to further discover the characteristics of different forms of capital, and their value in educational settings generally and in teachers' work particularly.

As mentioned previously, capital is dependent on the sociocultural context, and exploring it in different contexts should indicate its contribution to boosting teachers' power. There is thus great significance to the context in which teachers act, and the way in which capital is operated is likely to be the outcome of that context. Creating a measurement instrument and validating it for different and distinct groups – such as Arab and Jewish teachers in Israel - could strengthen the instrument and its suitability for various groups in society. Israel is a multi-ethnic society characterized by high sociocultural diversity. The Arab citizens of Israel, are a minority which is in a disadvantaged position and discriminated against in various ways (Suleiman, 2002). They constitute approximately 20% of the population and remain segregated from the Jewish population in many spheres of life (Golan-Agnon, 2006). The Arab education system in Israel functions as a separate, subordinate, and marginalized body within the state education system (Agbaria, 2015), facing a range of challenges as a minority group in Israeli society (Agbaria et al., 2020; Reingold & Baratz, 2020).

The Research Model

Our study was based on the model of sequential exploratory mixed methods design that focuses on the integration procedures in two-phase data collection and analysis (Creswell and Plano-Clark, 2018; Fetters, 2020). The two phases in this model can be connected by instrument development (Creswell, Plano-Clark et al., 2003) or as also described "typology development" (Tashakkori et al., 2021). Thus, "researchers form groups of attributes/themes through QUAL analysis followed by confirmatory statistical analysis of data that are also collected" (Tashakkori et al., 2021, p. 279). Using this model, the identification of codes and themes qualitatively can lead to the testing and validation of the data quantitatively (see for example Bridwell-Mitchell, 2013). This model is appropriate in cases where there is no measurement instrument suitable for the research, or when it is necessary to develop, improve, or enlarge an existing measurement instrument (Creswell & Creswell, 2018; DeVellis, 2012).

Following our decision to focus on teachers' forms of capital as the theoretical framework for this study we chose the specific research model involved in our research, since measuring teachers' capital, as defined in this research, has not been performed so far. The present research, to the best of our knowledge, is the first to empirically examine perceptions of forms of capital among Israeli Arab and Jewish teachers. Our use of semi-structured interviews as part of the qualitative research instrument let us design a questionnaire containing items that

combined theoretical literature with teachers' perceptions as they emerged from the field. In future studies, it can elaborate research on the various resources and assets that teachers activate during their work in different sociocultural contexts.

Method and Findings

The Structure of the Present Work

The current research was carried out in two main phases that were connected by the development of the instrument (see Figure 1) and were based on multisampling, in which two or more independent or related groups of people are sampled (Tashakkori et al., 2021). During the first phase, the exploratory qualitative one, we conducted semi-structured interviews with sixteen Israeli Jewish teachers, generating a pool of items to identify the underlying factor structure of capital. In this phase, we used thematic analysis to analyze the themes and segments based on statements from the interviews, in order to build items in a "capital scale" questionnaire.

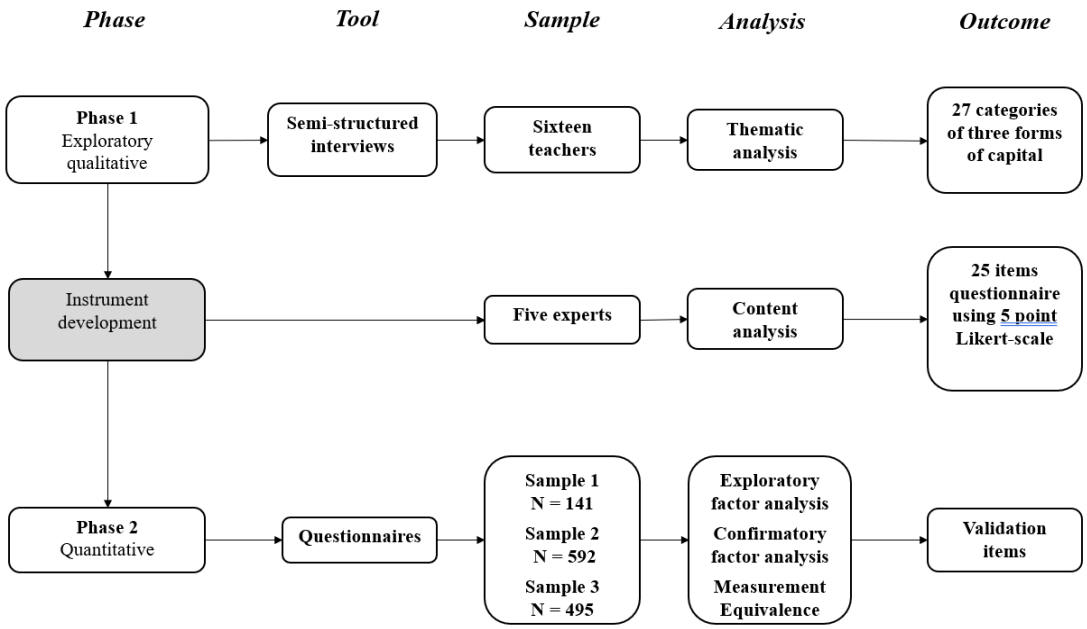

Figure 1. Exploratory Sequential Model with Instrument Development

Following the qualitative findings, we developed the instrument by formulating the statements obtained from the thematic analysis as items on a scale. This process was accompanied by experts in the sociology research field in order to verify the content validity of the instrument that included the items which emerged from the analysis process. This process is a type of judgmental validation since it relies on the conclusions of content experts, and it is particularly relevant when the study focuses on "*a specific and well-defined construct or attribute*" (Tashakkori et al., 2021, p. 200). At the end of the instrument development process, the "capital scale" questionnaire was well designed and ready for implementing in a pilot research among teachers.

Our second quantitative phase contained three steps aimed at validating the "capital scale" in different samples. The aim of using separate steps in the qualitative second phase was based on the assumption that "Developing a

good instrument is not easy, and adequate steps need to be put in place" (Creswell & Creswell, 2018, p. 226).

First, we conducted an exploratory factor analysis for validating the capital scale, based on a sample of 141 Israeli Jewish teachers. Second, a confirmatory factor analysis performed on a sample of 592 Israeli Jewish teachers, after which, based on an additional sample of 495 Israeli Arab teachers, we carried out an analysis of measurement equivalence between two ethnic groups of teachers - Israeli Arab and Israeli Jewish teachers. The research was approved by the Institutional Review Board (IRB) of the department of Education and psychology at the Open University of Israel (No. of approval 2714). All participants were informed of the risks and benefits of participation in the study, and signed the informed consent form.

We now present the full process of the two-phase model that structured our sequential exploratory model for instrument development, providing and discussing descriptions of the participants together with the procedure, analysis, and results for each phase.

Phase 1: Exploratory Qualitative

Participants and Procedure

The first phase was based on semi-structured interviews that were conducted to gain an insight for understanding the meaning of the different forms of capital associated with teachers' work. The specific objective was to obtain a preliminary identification of the resources that help or hinder teachers' work processes. The interviews were conducted with sixteen Israeli Jewish teachers (13 women, 3 men), who were sampled based on the "snowball" method (Creswell & Poth, 2018; Guest et al., 2013).

The structured part of the interview contained questions relating directly to the research scope. However we meticulously preserved the way in which the questions were phrased, to avoid indicating or hinting at the "required" answers, and ensuring it would still be relatively general - to enable a broad range of possible answers (Lincoln & Denzin, 1998) related to diverse forms of capital; for example:

- Which challenges do you encounter in your work as a teacher and how do you cope with them?
- Which factors help you in your work or contribute to your success as a teacher?

During the interviews, efforts were made to avoid directing respondents toward specific resources, in order not to guide or lead the interview in a way that might prevent presentation of aspects that the teacher perceives independently. We avoided using the explicit theoretical term "capital" or "resource," to ensure that "the participant's perspective on the phenomenon of interest should unfold as the participant views it (the emic perspective), not as the researcher views it (the etic perspective)" (Marshall & Rossman, 2016, p. 50). Reference was made to forms of capital only when the teacher discussed them of their own initiative during the interview.

Analysis and Results

The analysis of the first phase includes thematic analysis (Bazeley, 2021; Guest et al., 2012) that was based on

categorizations, coding, and themes and segments of the interviews, since "coding involves aggregating the text or visual data into small categories of information, seeking evidence for the code from different databases being used in the study" (Creswell & Poth, 2018, p. 190). The analysis of this qualitative phase was performed from the perspectives of the emic and etic theoretical concepts that are equally important (Bernard et al., 2017; Miles & Huberman, 1994). The analysis was divided into three steps (see Figure 2).

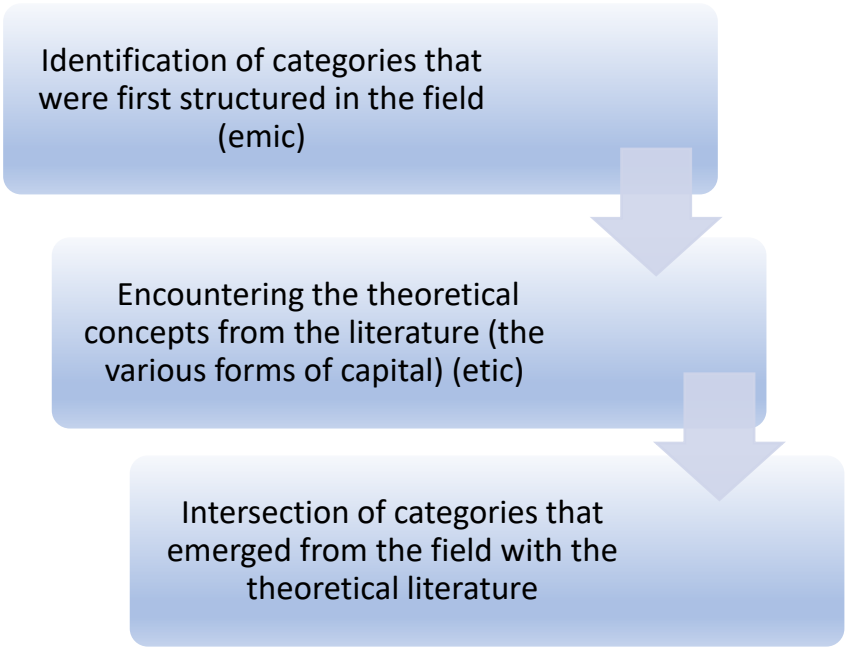

Figure 2. The Steps of Coding the Semi-structured Interviews

The first step was the identification of categories that were first found in the field (emic) (see Table 1). Examining theoretical concepts from the literature (the various forms of capital) (etic), that originate in Bourdieu's theory and studies carried out in the wake of that theory (Bourdieu, 1986; Spillane, Hallet & Diamond, 2003) was only performed in the second step. In the third step, intersection with the theoretical literature was performed only after the categories were crystallized and the hierarchic system was structured. In order to achieve confirmability during this qualitative phase, peer debriefing was conducted in which the researchers discussed the emerging findings to ensure the analyses were reflected in the data (Marshall & Rossman, 2016).

As we learn from the exploratory phase, the "background external resources" described by the teachers in statements emphasizing education, professional ability, professional development, and vocational training, could be related to academic cultural capital. As coined by Bourdieu (1986), one type of cultural capital is academic capital, which relates among others to academic diplomas and certifications that generate "documentation of cultural abilities that confer on their holders' conventional, permanent, and lawful value regarding power" (Bourdieu, 1986). This sub-category of cultural capital was central to the teachers' perceptions. "Social resources in school" was based on segments such as trust, collaboration, connection, togetherness, ties; they can reflect the social capital which is expressed in a system of social contacts and relationships built between individuals in a group or organization. Norms and arrays such as trust, collaboration, and a sense of commitment all derive from that system of social contexts and enable common goals to be achieved (Coleman, 1988). Finally, "personal

resources" included "inter-personality tendencies" such as empathy, caring, and sensibility that can be viewed as feminine capital – a concept which was developed by theoreticians who continued Bourdieu's path. This form of capital includes characteristics of sharing, empathy, expression, emotion, and caring. Although it has principally been researched among women (see for example Fujimoto, 2004; Huppatz, 2009, 2012), it characterizes men and women alike (Huppatz & Goodwin, 2013), and is likely to be influenced by the specific sphere of occupation. Accordingly, a "female-dominated" occupation (e.g., nursing, social work) is likely to create or demand feminine skills (Atkinson, 2009; Bourdieu, 2001. (Huppatz, 2009). This appears to be correct for teaching too.

Table 1. Categories/themes that emerged from the Interviews

Descriptive category/theme	The segments of the category/theme	Statements (examples)
Background external resources	Education, professional ability, professional development, vocational training	"A degree in education is important. I have an inferiority complex because I don't have a master's degree. I feel this among friends and other teachers. He is a doctor, she's a psychologist, another teacher colleague is doing a PhD. I was left with my undergraduate degree" (Anat).
Personal resources	Inter-personality tendencies, empathy, caring, sensibility.	As a teacher, by definition you are a therapist. Even if it's not preschool. You keep taking care of these kids. I think the ability to do that is necessary in the profession" (Nili). "I care about the children. I love them. I don't thing that this characterizes only women. Men like me are motivated to be teachers because they have these 'motherhood' feelings" (Yoram).
Social resources	Trust, collaboration, connection, together, ties.	"I trust my school team. I know they will be there for me. And I have backup and support from the principal. When I have a conflict with a parent – he is there for me" (Ayelet).

After addressing these three forms of capital – academic-cultural, social, and feminine – and their segments that emerged from the interviews, we continue to the procedure of developing the "Capital Scale" instrument.

Instrument Development ("Capital Scale")

The "capital scale" instrument was first drafted based on the categories obtained from the interviews after intersecting them with the theoretical literature. Thus, the forms of capital studied based on the subcategories that emerged from the field and that were cross-referenced with the research literature were formulated as measurement items, which were based on the content that emerged from the interviews and reflected the resources which help teachers in their work (see Table 2).

Table 2. Examples of Items that were formulated based on the Subcategories

Theme that emerged from the interviews	Sub-themes	Theoretical concept	Item
Background external resources	Education	Academic cultural capital	My highest academic degree
			The knowledge I accumulated during my academic studies
Social resources inside school	Relationship between principal and teachers	Social capital	The support I get from the school principal
			The level of trust between the principal and the teaching staff
	Relationship between the teachers		Closeness of inter-personal relations between the staff
Personal resources	Inter-personality tendencies	Feminine capital	Empathy skills – listening and identifying
			My caring ability

The questionnaire contained 26 items. Once a set of items was generated, five independent experts from the sociology field reviewed them to establish preliminary face and content validity, and to identify ambiguous wording, double-barreled items, and redundant items. The experts were asked to classify the items into three content dimensions (academic-cultural, feminine, and social capitals). As a result, two items were discarded ("My linguistic richness;" "The language I use") reducing the pool to 24 items. The goal of this development process was to develop the underlying structure of a *capital scale* for the forms of capital.

Phase 2: Quantitative Design and Analysis

Our second phase - quantitative design and analysis - included three steps aimed at validating the "capital scale" for different samples using different analyses: (1) exploratory factor analysis; (2) confirmatory factor analysis; and (3) measurement equivalence.

(1) Exploratory Factor Analysis

Participants and Procedure

One hundred and eighty questionnaires were distributed via e-mail to teachers from urban schools, using the "snowball" sampling method (Guest et al., 2013; Patton, 2002). One hundred forty-one questionnaires were filled out by Jewish teachers. The capital scale contains 24 items related to the three forms of capital – social, academic-cultural, and feminine. For each item separately, participants were asked to answer "To what extent do the following resources contribute to your work as a school teacher?" The scale was formatted as a 5-point Likert scale, which ranged from 1 (*does not support*) to 5 (*strongly support*).

Analyses

We run an exploratory factor analysis using a principle components analysis with an oblique rotation, using the SPSS software package. The results of this analysis are presented in Table 3. The first factor contained nine items that pertained to *social capital*. The second factor contained seven items that reflect *academic-cultural capital*. The third factor consisted of eight items that reflect *feminine capital*. The three factors explain 50.66% of variance. Interfactor correlations are presented in Table 4.

Table 3. Capital Factor Loadings for the Final Item Pool Exploratory Factor Analysis

	Factor (F) Loadings		
Item	F1	F2	F3
Social capital - eigenvalue of 7.0, 19.7% variance explained			
The social cohesiveness and ties of the school staff	.811[a]		
The support I get from the school principal	.746		
Collaboration from the teaching staff	.815		
The level of trust between the principal and the teaching staff	.695		
Support from and consultations with teaching staff	.721		
My ability to consult with the policy manager – "open door"	.729		
Closeness of interpersonal relations between the staff	.739		
My ability to express emotions	.476		
The ability to share feelings and emotions with others	.515		
Academic cultural capital - eigenvalue of 3.4, 16.6% variance explained			
The knowledge I accumulated during my academic studies		.821	
My highest academic degree		.828	
The kind of academic institution where I studied		.726	
The amount of professional training I went through to become a teacher		.692	
My professional training & in-service training during my work		.688	
My external appearance		.418	
My hobbies and leisure activities		.452	
Feminine capital - eigenvalue of 2.1, 14.4% variance explained			
My intuition			.704
Empathy skills – listening and identifying			.727
My caring ability			.639
My level of sensitivity to others			.667
My love of children			.650
The width of my horizons (general knowledge)			.434
The family and setting where I grew up			.536

[a] Factor Loadings of item "Prefer to invest in others before myself" from the "feminine capital" is lower than .4 not listed. All other loadings were significant at $p<.01$

Table 4. Capital Scale Intercorrelations

Factor	**1**	**2**	**3**
1. Social capital	-		
2. Academic cultural capital	.16	-	
3. Feminine capital	.43*	.32*	-

*Note**p<.01

Total scale's reliability coefficient alpha (Cronbach's) was .89. Alphas for the social capital subscale, the academic-cultural capital subscale, and the feminine capital subscale were all acceptable (.88, .82, and .82, respectively). To remove redundancy, two items were removed from the social capital ("My ability to express emotions" and "The ability to share feelings and emotions with others"). Two items were removed from the academic-cultural capital ("My external appearance" and "My hobbies and leisure activities") and two items were removed from the feminine capital subscale "The width of my horizons (general knowledge)" and "The family and setting where I grew up"). These items did not add substantial theoretical content to the subscales. The alpha coefficients of the reduced social, cultural, and feminine capital subscale were all acceptable (.88, .85, and .81, respectively).

The purpose of exploratory factor analysis was to base the existence of a capital scale and to reveal its underlying structure. The analyses yielded a 17-item scale with three factors: (a) social capital, (b) academic cultural capital, and (c) feminine capital. The structure that was obtained, based on the analysis of this study, enhances the distinction between the three theoretical concepts of the forms of capital.

The social capital structure is well defined by connections, support, collaboration, trust, consulting, and closeness as described by the theoretical literature regarding social capital (Coleman, 1990), and the structure of academic-cultural capital is well established by knowledge, academic degree and institutions, and professional background (Bourdieu, 1986). As for feminine capital, the structure includes intuition, empathy, caring, and sensitivity, which are the central components of the theoretical framework of this capital. Since we look at each capital separately, and take a comparative view of the three forms of capital, the structures seem highly appropriate for the theoretical concepts.

(2) Confirmatory Factor Analysis

The aim of the confirmatory factor analysis was to validate the factor structure obtained in the previous analysis (exploratory factor). It was based on a random sample of 32 Israeli Jewish schools out of 259 schools located in two districts in northern Israel, out of seven districts, all of which have similar characteristics in terms of large student-bodies (500 students or more) and their urban setting. The questionnaire was administered in the sampled schools to Jewish teachers who agreed to participate in the study (the average response rate was 64%). Five hundred ninety-two teachers filled out the 17-item Capital Scale: 450 women (76%), 142 men (24%); 438 teachers at secondary school (74%), 154 at elementary school (26%); seniority M=17.73, SD=10.77. The descriptive statistics of the scale are presented in Table 5.

Table 5. Capital Scale Items and Descriptive Statistics across Jews

Factor and Item	M	SD
Social capital		
The social cohesiveness and ties of the school staff	3.97	.86
The support I get from the school principal	4.06	.96
Collaboration from the teaching staff	4.17	.80
The level of trust between the principal and the teaching staff	4.15	.90
Support from and consultations with teaching staff	4.07	.77
My ability to consult with the policy manager – "open door"	3.97	1.03
Closeness of inter-personal relations between the staff	3.93	.89
Academic cultural capital		
The knowledge I accumulated during my academic studies	3.92	.95
My highest academic degree	3.62	1.06
The kind of academic institution where I studied	3.52	1.15
The amount of professional training I went through to become a teacher	3.81	1.02
My professional training & in-service training during my work	3.93	.98
Feminine capital		
My intuition	4.38	.76
Empathy skills – listening and identifying	4.41	.70
My caring ability	4.19	.81
My level of sensitivity to others	4.44	.68
My love of children	4.52	.67

Confirmatory factor analysis was performed using the AMOS 21.0 software package (Arbuckle, 2014). Item standardized regression weight estimates are presented in Table 6. All items loaded significantly on their expected factor. This three-factor model presented a good fit (Hu & Bentler, 1999) to the data,$x^2(N = 592) = 255.46, p < .01$) (Comparative-fit-index$[\mathrm{CFI}] = .963$, goodness-of-fit index$[\mathrm{GFI}] = .953$, and the root-mean-squared-error-of-approximation $[\mathrm{RMSEA}] = .050$) and thus validated the trait structure obtained in Study 1. The Scale alpha was .87. Subscale alphas were .84 for the social capital, .84 for the cultural capital, .82 for the feminine capital.

(3) Measurement Equivalence

From a methodological perspective, evidence for measurement equivalence is required before an instrument can be validly used across cultures (e.g., Liu et al., 2004; Vandenberg & Lance, 2000). Therefore, in this phase, we examined the meaningfulness of the construct and validity of the scale across two cultures (Jews and Arabs). Following the notion that the forms of capital which teachers activate are likely to be context-dependent, the theoretical concept of the capital scale should be validated across separate and different ethnic groups. Moving forward to a scale that can be applied to groups characterized by different backgrounds can enhance the use of this instrument by multiple populations.

Table 6. Estimated Standardized Regression Weights for the Three-Factor Model Confirmatory Factor Analysis

Item	Estimate
Social capital	
The social cohesiveness and ties of the school staff	.66
The support I get from the school principal	.53
Collaboration from the teaching staff	.74
The level of trust between the principal and the teaching staff	.54
Support from and consultations with teaching staff	.58
My ability to consult with the policy manager – "open door"	.56
Closeness of inter-personal relations between the staff	.66
Academic cultural capital	
The knowledge I accumulated during my academic studies	.76
My highest academic degree	.78
The kind of academic institution where I studied	.68
The amount of professional training I went through to become a teacher	.71
My professional training & in-service training during my work	.62
Feminine capital	
My intuition	.56
Empathy skills – listening and identifying	.78
My caring ability	.62
My level of sensitivity to others	.77
My love of children	.70

Participants and Procedure

The sample of the Jewish sector from the confirmatory factor analysis from the previous step was used to test if that model with a construct developed in a given culture (Jewish) can be validly applied in other cultures (Arab). The sample of the Israeli Arab school was similar to the Israeli Jewish school. It was based on a random sample of 19 Israeli Arab schools out of 206 schools located in two districts in northern Israel, out of seven districts, all of which have similar characteristics regarding the large student bodies (500 students or more) and the urban settings.

Four hundred ninety-five Israeli Arab teachers filled out the 17-item capital scale (the average response rate was 71%): 297 women (60%), 198 men (40%); 267 teachers at secondary schools (54%), 228 at elementary schools (46%); seniority M=14.42, SD=9.14. Following recommended procedures (e.g., Schaffer & Riordan, 2003), we translated the Capital Scale into Arabic through a translation and back-translation process by two individuals who were fluent in both Hebrew and Arabic. Any differences found between the original and back-translated versions were discussed until agreement was reached concerning the most appropriate translation. Response options ranged from one (*strongly disagree*) to five (*strongly agree*).

Analyses

We run a multigroup Confirmatory Factor Analysis (CFA) procedure in order to test the scale's measurement equivalence across samples. For this reason we used Amos software (Arbuckle, 2006). This procedure includes three-step series of nested constraints that are placed on parameters across samples (e.g., Oreg, et al, 2008). The first (*configural invariance)* and the second (*metric invariance)* are used for testing whether that a dimensions hold the same psychological meaning across samples. The last step's goat is to see (*scalar invariance),* if the sample means can be meaningfully compared. Since the proposed study focuses on an individual level personality, we limit our analyses to the first and the second steps (configural and metric invariance).

Configural invariance involves a testing of the configuration of association between statements and latent variables across two or more samples. Each scale statement has to show the same pattern of zero and nonzero loadings on the latent dimensions in each sample. More specifically, the configural invariance examines the extent to which the same three-factor Capital Scale structure is justified in both samples, while the metric invariance tests whether statement loadings are of the same value across samples (Oreg, et al., 2008)). Metric invariance indicates that participants of the different samples interpret the dimensions meaning in the same way.

As evidence for metric invariance, in addition to the acceptable good model fit, the model fit of the *configural* invariance should not be significantly better than that of the metric invariance Since the chi-square difference test might be biased (Vandenberg & Lance, 2000; Oreg et al., 2008the differences between models should be tested by using of fit indices beyond the chi-square (Oreg, et al, 2008). In our case, following Cheung & Rensvold (2002), we will compare between the indexes RMSEAs and CFIs of both model. For the ΔCFI, an absolute value of .01 or smaller indicates that the invariance hypothesis should be accepted. However coefficientsover .02 point a lack of invariance while coefficients between .01 and .02 suggest that some differences may exist between two models (Cheung & Rensvold, 2002; Oreg et al., 2008).

Results

First, following instruction, we tested a confirmatory factor analysisonly for the sample of Arab teachers. All items loaded significantly on their expected latent factor (see Table 7). This three-factor model presented a good fit with the data,$x^2(N = 495) = 227.25, p < .01$).(CFI $= .96$, GFI$= .948$, and the RMSEA $= .050$). The scale alpha was .89. Subscale alphas were .86 for social capital, .75 for cultural capital, and .75 for feminine capital. The measurement equivalence analysis was performed using the AMOS 21.0 software package (Arbuckle, 2014). This three-factor model presented a good fit (Hu & Bentler, 1999) to the data,$x^2(N = 495) = 273.67, p <$ $.01$).(Comparative-fit-index[CFI] $= .960$, goodness-of-fit index[GFI] $= .948$, and the root-mean-squared-error-of-approximation [RMSEA] $= .050$). The Scale alpha was .87. Subscale alphas were .84 for social capital, .84 for cultural capital, and .82 for feminine capital. Next, in order to test the configural and metric invariance of the scale across the two samples, we continued with the intercorrelated three-factor model (Figure 3). As for the configural invariance model, all statements showed a significant loading on their corresponding factors in both cultures with a satisfactory fit (RMSEA = .036, CFI = .962, GFI = .953).

Table 7. Estimated Standardized Regression Weights for the Three-Factor Model Confirmatory Factor Analysis among Arab teachers

Item	Estimate
Social capital	
The social cohesiveness and ties of the school staff	.72
The support I get from the school principal	.56
Collaboration from the teaching staff	.73
The level of trust between the principal and the teaching staff	.66
Support from and consultations with teaching staff	.62
My ability to consult with the policy manager – "open door"	.55
Closeness of inter-personal relations between the staff	.76
Academic cultural capital	
The knowledge I accumulated during my academic studies	.70
My highest academic degree	.62
The kind of academic institution where I studied	.55
The amount of professional training I went through to become a teacher	.64
My professional training & in-service training during my work	.56
Feminine capital	
My intuition	.57
Empathy skills – listening and identifying	.75
My caring ability	.55
My level of sensitivity to others	.64
My love of children	.62

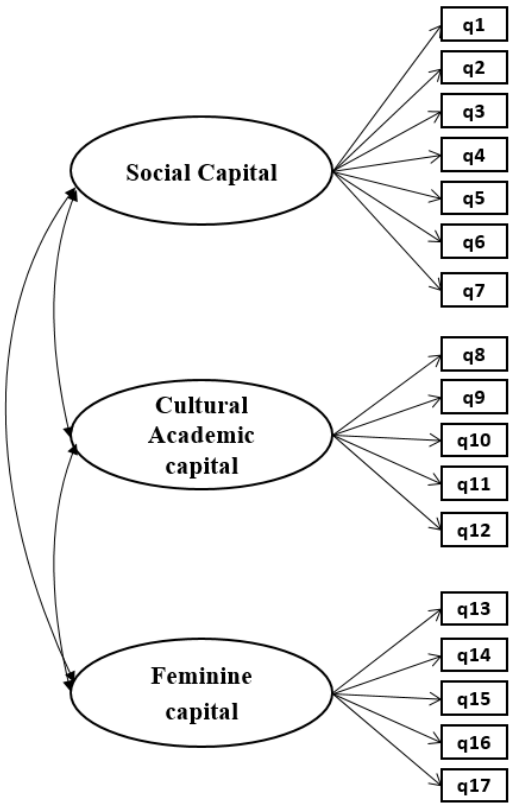

Figure 3. Three-factor Model with Intercorrelated Factors (for items used, see Table 6)

Then, following the instructions mentioned above, we ran the chi-square difference test focusing on the differences in RMSEAs, CFIs, and GFIs across models. The chi-square difference test was significant $\Delta x^2 = 63.7, N.S$. The results of the differences in the fit indexes were .001, .001, and .002 for the ΔRMSEA, ΔCFI, and ΔGFI, suggesting that the fully constrained metric model yielded satisfactory fit.

Discussion

The current study was aimed at developing an instrument for measuring the different forms of teachers' capital. The combination of the two methods yielded a rigorous construct of a questionnaire that contained items which had emerged from the sample of Israeli Jewish teachers who participated in the exploratory quantitative phase, and in the exploratory and confirmatory factor analysis. In addition, a measurement equivalence was conducted using a sample of two separate diverse ethnic groups – Israeli Arab and Jewish teachers. Two main issues can be discussed regarding the process of the development and validation of the 'Capital Scale' instrument:

First, the interviews conducted in the exploratory phase led to the identification of the resources and assets of teachers during their work in the teaching profession. This qualitative part of the research was value added against the theoretical and empirical literature. The data emerged from the interviews shed light on the forms of capital and elaborated features of concepts that have been less empirically studied among teachers – such as academic cultural capital and feminine capital. As this qualitative aspect was a component of a mixed methods research, our challenge was "to decide which data to use from the qualitative phase to build the quantitative instrument and how to use these data to generate quantitative measures" (Creswell & Plano-Clark, 2007, p. 79). We focused on this phase as an integration point of the model (Creswell & Creswell, 2018) since our aim was to sensitively capture the segments of the resources in the eyes of the teachers themselves.

Second, since the forms of capital are broadly discussed in the literature as context-dependent, and specific capital is activated in specific field, e.g., an occupation (Atkinson, 2009), the validation process of the instrument among different ethnic groups, such as Israeli Arab and Jewish teachers, can enhance the validity of the instrument and the possibility to use it in future among different groups of teachers. In general, the forms of capital were discussed and studied in different contexts, such as diverse socio-economic status groups (Huppatz, 2015), immigrants (Yu, 2020) or ethnic groups (Zhao & You, 2021). The validated instrument can lead to further examination of differences regarding capital in multiple schools, and teachers in Israel as a multicultural society as in other multicultural societies across the world. The features of resources that teachers possess and activate can be useful for describing and explaining processes of work in the teaching profession. The construct that was found and established by validation in the current study enhance the ability to use the instrument in studies focusing on variables connected to aspects of teachers' work.

Conclusion

The current study offer theoretical and methodological contributions that both related to the principles of the mixed methods research. As for the theoretical contribution, the integration of the methods enable us to focus on

teachers' work and the teaching profession as a field with particular features. The semi-structured interviews at the first phase lead us to specific and relevant themes describing resources as teacher perceive it regarding their work. The data emerged from the field elaborate our knowledge of the diverse assets of teachers and create the condition of instrument development for concepts that were not measured in this way before. As for the methodological contribution, validation of the developed scale by using three independent samples, including two different ethnic groups, elaborate the future possible studies among different groups in different contexts. Thus, the mixed method research provide the advantages of both methods – understanding the experiences of teachers alongside the validation of data based on a large number of participants across two ethnic groups (Creswell & Creswell, 2018; Fetters, 2020).

Recommendations

This exploratory study can be considered as a first step toward developing central and essential forms of capital in the field of education in general, and among teachers particularly. The integration of both methods led to the establishment of more accurate and relevant characteristics of the items in the Capital Scale instrument. Future studies can broaden the arenas and populations examined by this instrument, alongside future empirical attempts to capture the dynamic of teachers' resources as reflected in new and broader resources.

Notes

This research was approved by the Institutional Review Board (IRB) of The Open University of Israel (Approval No. 2714) .The authors declare that there is no conflict of interest in this study.

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