Position Generator measures and their relationship to other Social Capital measures *

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20th October 2004

*This research is part of the Research Program "Creation of and returns to social capital; Social Capital in education and labor markets" (SCALE), a combined project of the universities of Utrecht (UU), Groningen (RuG), and Amsterdam (UvA), funded by the Dutch Organization for Scientific Research, project number 510-50-204.

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Abstract

This chapter discusses a number of questions concerning the measures for social capital that can be derived from Position Generator data. One of the key issues regarding its application in prospective research remains the emphasis of such measures on the prestige of occupations as a main representation of social resources. Whereas occupational prestige can be a suitable operationalisation for the study of 'big social capital issues' such as status attainment and labour market opportunities, other social capital questions may need different methods. For the 1999-2000 Survey on the Social Networks of the Dutch we therefore compare various measures calculated from Position Generator data with measures derived from the the Name generator / interpreter exchange relationship method (McCallister & Fischer, 1978), and the Resource Generator method (Snijders, 1999; Van der Gaag & Snijders, 2004b). Results show that especially Position Generator and Name Generator measures are weakly related. Position Generator data remain the most useful for (comparative) general studies of social capital and instrumental action in particular. However, for the study of returns to specifically expressive or goal specific actions with social capital, other measurement methods may be more valid, for which a tentative, parsimonious measurement strategy is proposed.

Keywords: Social capital; measurement; Position Generator; scale construction.

1 introduction

Since its first use in the 1975 Albany study (Lin & Dumin, 1986) the Position Generator has not only proven to be a consistently constructed, but also popular and consistently applied method for the measurement of social capital. The instrument has especially been appealing for investigations of the productivity of general individual social capital, i.e. social capital research about general populations, that does not focus on a particular life domain. The logic and theoretical rigor behind the instrument make it possible to develop a Position Generator for every society in which occupations, occupational prestiges and/or job-related socioeconomic indices have been catalogued. These characteristics make the instrument very appealing for comparisons of returns to social capital between populations.

It must be kept in mind however that the original idea of operationalisation behind the construction of the Position Generator implies clear theoretical restrictions. Lin (2001a:45-46) suggested that individual actions accomplished with the help of social capital can be classified into *instrumental* actions (gaining resources), and *expressive* actions (maintaining resources). The operationalisation of social resource measurement in Position Generator measures is traditionally moulded in access to higher occupational prestiges and access to diverse networks (see also section 'indicator construction'). These are useful abstractions to characterise networks helpful in the accomplishment of *instrumental* actions: finding a (better) job, a house, etc. For the investigation of other social capital questions, such measures are less suitable. In expressive actions, expected returns from social capital are e.g. the reception of personal support, and the sharing of sentiments (Lin, 2001a:45). Such outcomes are less obviously a result from access to prestige-rich positions; there is no reason to believe that network members in more prestigious occupations are also more directly supportive in expressive actions. Lin (2001a:63) already remarked that having only ties of high status does not meet many different life needs; support in the form of

practical assistance may especially come from network members in lower positions. Also, the argument that alters in powerful positions are more influential and more likely to provide access to resources in *their* network is less relevant for expressive actions, since e.g. socio-emotional support from 'friends of friends' is generally not useful. Position Generator indicators of network diversity that do not refer to occupational prestiges may be more valid for studying expressive actions. It could be argued that more diverse networks give better access to *any* kind of social resource, since they include more different alters, each with different personal resource collections and different relationships to a focal individual. Yet, the expected relationship between diversity in network prestige, occupational diversity and personal support remains a rather indirect one.

Because of its focus on accessing network members holding occupational titles, the Position Generator also ignores access to network members who have positions in society that are traditionally not associated with occupational prestiges: homemakers, the unemployed, retired people, and younger people still in education. While not having a classifiable occupation, such network members can be valuable social capital for expressive actions; they can all contribute attention, care, accompaniment, love, and various other resources incorporated in their human and cultural capital. The presence of these resources is mostly independent of job title. Therefore, when we aim to measure 'the' social capital of the general population across the general life domain using only the Position Generator instrument, measurements will result in underestimations of specific parts of social capital.

In this contribution, we aim to begin an answer to the question for which social capital research question which measurement instrument is useful. We do this by using the Position Generator as a reference point, and subsequently observe for which questions other models and measures may be more suitable. We will compare Position Generator measures with indicators constructed from alternative social capital measurement instruments, and in addition investigate the inter-relationships between

the various measures that can be calculated from Position Generator data.

2 available instruments

The Position Generator is a measurement method for the social capital of individuals from a class of models that start operationalisation from specific theoretical choices. First of these choices is the inclusion of indicators for all three dimensions of social capital that have been established as essential for measurement (Flap, 2002; Lin, 2001b): the presence of alters, the resources of these alters, as well as the availability of these resources to a focal individual. Furthermore, it includes an emphasis on the construction of 'access' type measures, that indicate potentially available, positive social resources embedded in personal social networks, but that do not consider their actual use or application in individual actions. Such a separation between studying access and use avoids confounding social capital measurements with individual needs and other contextual variables (Flap, 2002; Lin 2001a, Van der Gaag & Snijders, 2004a). In its aim to be 'content free' (Lin et al, 2001), the Position Generator is also one of several social capital measurement instruments designed to cover the 'general' life domain of the modern western individual (see also Lin & Erickson, this volume), without considering specific areas of goal attainment, life domains, or subpopulations.

Other measurement instruments for social capital complying with these choices are versions of the Name Generator / interpreter method and the Resource Generator. The extensive social network inventory performed with the *Name Generator / interpreter* is the oldest measurement method for social capital, and has been applied by many researchers. While various types of name generating questions have been tested (e.g. Van Sonderen et al, 1990), the 'exchange' type Name Generator proposed by McCallister & Fischer (1978) eventually found its widest use—its most famous example being the single 'core'-network identifying GSS-item "with whom do you talk about personal matters?" (see e.g. Burt, 1984; Marsden, 1987). For social

capital research the Name Generator / interpreter can provide detailed social network and social capital information, but its costs may be high (see also Lin & Erickson, this volume), while for many research questions it may also retrieve much superfluous data (Van der Gaag & Snijders, 2004a). The *Resource Generator* (Snijders, 1999; Van der Gaag & Snijders, 2004b) offers a new development in measuring social capital, by using a 'checklist': in an interview situation access is checked to of a list of useful and concrete social resources for which exchange is acceptable. This method combines the economy of the Position Generator with the thoroughness and content validity of the Name generator / interpreter method. While its data are concrete and its administration is quick, its construction proves to be challenging, and bound to a specific population (Van der Gaag & Snijders, 2004b).

While Position Generator, Name Generator, and Resource Generator instruments operate from the same theoretical perspective, an overall comparison showed that each instrument emphasises different aspects of social capital; in addition, measures from each instrument have distinctive predictive value on specific outcomes of social capital (Van der Gaag & Snijders, 2003). While these outcomes emphasise that a social capital measurement instrument needs to be carefully chosen, it also tells us that each instrument has its own merits. In this contribution, we will further specify *which*.

3 data and methods

For the investigation of relationships between three social capital measurement models we analyse data of the "Survey on the Social Networks of the Dutch" (SSND), which were collected for this purpose in 1999-2000. Specially trained interviewers administered questionnaires in the respondents' homes, with interviews lasting one hour and fifty minutes on average (questions of other research projects were also included). The sample (N=1,004), collected in 40 randomly selected municipalities

across the country, consisted of two subsamples of the adult population (aged 18-65) for the Netherlands. In the initial sample, only wage-earning individuals were selected (N=500); in an additional sample, all agreeing to an interview were included. This resulted in an over-representation of wage-earners in the sample. The response rate for the combined, final sample is 40% (for a more detailed description of the sample see Völker & Flap, 2004).

In the SSND questionnaire, a set of 13 exchange type *Name Generator / interpreter* questions (see appendix, Table A) was based on many earlier investigations (e.g. Fischer, 1982; for a detailed description of all questions and interview procedure see Van der Gaag & Snijders, 2003). A 33-item *Resource Generator* was newly developed for this purpose (see appendix, Table B and Van der Gaag & Snijders, 2004b). The set of 30 Position Generator items central to our investigations (Table 1) was based on earlier research in the Netherlands (Boxman et al, 1991; Moerbeek, 2001) and the former GDR (Völker, 1995; Völker & Flap, 1999).

Table 1 about here

It was assumed that this set of occupations was representative for the Netherlands in 1999. The occupations were coded using the 1992 standard classification for occupations of the Dutch Central Bureau of Statistics (CBS, 1993), and linked to Sixma and Ultee's 1992 occupational prestige measures and international ISEI measures for socioeconomic status (Bakker et al, 1997; see Table 1). These measures have a slightly different interpretation: prestige measures refer more to "social rewards people can expect in human interactions", while socio-economic indices refer more directly to human resources and economic rewards (Ganzeboom & Treiman, 2003; p.173). Each of the measures therefore focuses on distinct aspects of 'access to occupations' as intended by Lin (2001a/b): while prestige measures could be argued to indicate *influence* attached to higher positions in society, socioeconomic measures may be closer to indications of (social) *resource* collections associated with occupations. Also be-

cause ISEI measures enable better comparisons with other data, in the remainder of this chapter all Position Generator measures are based on ISEI measures.[1] For reasons of fluidity, we will however use the term 'prestige' for these indications.

The general question for the Position Generator was whether the respondent 'knew anyone in each of these occupations' (whereas Table 1 shows the occupations in order of occupational prestige, in the questionnaire the order was randomised (see column 'item #')). As a criterion of 'knowing' a person, the respondent was asked to imagine that when accidentally met on the street, he or she would know the (first) name of that person, and both could start a conversation with each other. A second question asked to identify the person as an acquaintance, a friend, or a family member holding that occupation; the exact interpretation of these roles was left up to the respondent. Responses to the items were coded as (0) no person at all (1) an acquaintance (2) a friend or (3) a family member. In order to save interview time, only the strongest relation was coded following this increasing order of tie strength. Thus, when a respondent mentioned an acquaintance in response, it was asked whether he or she also knew a friend or family member; when a friend was mentioned, whether a family member in that position was also known, and when a family member was mentioned as a first response, the interviewer moved to the question about the next occupation. Different from other Position Generator studies, this could result in information implicitly including an assumption of a positive effect of accessing social capital through stronger ties. To avoid this bias, for the calculation of social capital indicators only dichotomised answers were used: (1) 'knowing at least one person, in any relationship' or (0) 'no person at all'.

[1] Ultee & Sixma prestige and ISEI values for the 30 occupations in the SSND Position Generator are highly correlated (r=0.91; $p \leq$0.001); the same analyses with Ultee & Sixma prestige measures (reported in Van der Gaag, 2005: ch. 6) show almost the same results.

4 Position Generator responses and measures

4.1 distribution of initial responses

The distribution of initial responses to the Position Generator items is shown in Table 1. Averaged over the 30 occupations, 50% of the respondents say to know at least one alter in this occupation, through any relationship. The most popular items (with the most positive responses) are nurse, teacher, mechanic, and director of a company. Occupations that are least often accessed are trade union manager, engine driver, foreman, and postman. There is no relation between the prestige of the occupations and their overall popularity (r=0.19; p=0.33).

On average, 37% of the occupations was accessed through acquaintances, 22% through friends, and 41% through family relationships (see Table 1, right columns). For most occupations 'friends' are about 20% of the relationships that give access to these positions; occupations more often accessed though 'acquaintances' are trade union manager, estate agent, police officer, insurance agent, hairdresser, postman, and cleaner. Family members gave access to the most popular occupations: manager, director of a company, teacher, nurse, and sales employee. On average, family relationships gave access to more different occupations (6.39) than acquaintances (5.19) and friends (3.35).

4.2 indicator construction

Irrespective of the used type of questions, several notions have been developed to express the beneficiality of social capital. These have been described as social capital *volume* or *extensity*, *diversity*, and the presence of resources of specific *quality* in social networks. Position Generator, Name Generator and Resource Generator instruments all enable the calculation of measures based on these notions (Van der Gaag & Snijders, 2004b).

Since the introduction of the Position Generator, the construction of social

capital indicators from this instrument in particular has remained largely standardised. Three deductive measures, directly derived from Lin's social capital propositions (Lin, 2001a:61-63), are also the measures most often used. *Highest accessed prestige* is currently the only regularly used social capital measure referring to specific social resource quality. It is based on the hypothesis that positive social capital effects result from accessing network members with high prestiges (Lin, 2001a:62). Two Position Generator measures are diversity measures, based on the idea proposed by several authors (Burt, 1992; Erickson, 1996, 2003; Granovetter, 1973; Lin, 2001a; see also Erickson, this volume) that specific resources and relationships can be located and accessed more succesfully when more differentiation in resources and relationships is present in the network, hence resulting in better social capital. *Range in accessed prestige* is calculated as the difference between highest and lowest accessed prestige, while *number of different positions accessed* is the total number of occupations in which a respondent says to know anyone.

In addition to these often used measures, we calculated two additional ones. The *average accessed prestige*, a measure introduced by Campbell et al (1986) is calculated as the mean of the prestige of all occupations in which the respondent says to know anyone. *Total accessed prestige* is a social capital volume measure used by Hsung & Hwang (1992; cf. Lin, 1999), and calculated as the cumulative prestige of all accessed occupations.

An alternative way to construct measures may be performed in an *inductive* rather than a deductive fashion: multiple sets of domain-specific social capital measures can be constructed by identifying latent traits in social capital data (Van der Gaag & Snijders, 2004a/b). Models developed from Item Response Theory (IRT) provide the most suitable methodology to construct such measures, since social capital data typically have an ordinal level of measurement with few categories (Van der Gaag & Snijders, 2004a/b). Within IRT a distinction can be made between cumulative and unfolding models (see e.g. Van der Linden & Hambleton, 1996). For the

identification of latent traits in social capital, cumulative models are closest in meaning to the idea of having 'more' or 'less' access to subcollections of social capital (Van der Gaag & Snijders, 2004b). Therefore, we chose to perform explorative analyses with non-parametric cumulative 'Mokken'-scaling analyses (Mokken, 1996; Sijtsma & Molenaar, 2002) with special software MSP (Molenaar & Sijtsma, 2000), for all sets of social capital measurement items in the SSND data. In the scaling procedure, there is a trade-off between reliability and homogeneity; we chose to focus on scales with sufficient reliability, resulting in scales with relatively weak homogeneity. These analyses result in the identification of subscales with a cumulative character. This means that on a population level we can expect that respondents who access very unpopular items in a scale, they will also access more popular items in the same scale (this will become clear in the results below).[2]

An exploration of SSND Position Generator data identified two scales. *High prestige social capital* is a scale indicating access to a scientist, policy maker, lawyer, medical person, higher civil servant, manager, director of a company, and teacher – since the scale is cumulative, respondents who access a scientist (least accessed item) will also access the other positions (similarly, respondents who access a policy maker (second least accessed item) will also access more popular items lawyer, doctor, manager, etc.). *Low prestige social capital* is a cumulative scale indicating access to an engine driver, cleaner, unskilled labourer, hairdresser, sales person, and construction worker.[3]

[2]The quality of these subscales can be judged as follows. Scale homogeneity (or unidimensionality) is expressed with Loevinger's H, that can reach a maximum value of 1 (perfect homogeneity), but can also reach negative values (Loevinger, 1947). Scales with $H \geq 0.4$ are regarded as medium strong scales, and ≥ 0.5 as strong scales (Mokken, 1996). Within each scale, an item-specific homogeneity value H_i indicates its fit into the scale. The reliability of cumulative scales is expressed with coefficient *rho*, that can reach values between 0 and 1; values from about 0.60 are considered sufficiently reliable (Molenaar & Sijtsma, 2000).

[3]The Position Generator items also form a bipolar unfolding scale for the SSND data; the two

4.3 indicator characteristics

In Table 2, the distribution characteristics of all calculated Position Generator measures are shown.

Table 2 about here

Clearly, the distribution of some measures seriously deviates from normality, which can be a disadvantage in their use as variables in predictive analyses (Table 2, column 'skewness'). For the most skewed measures, 'highest accessed prestige' and 'range in accessed prestige', this is caused by the fact that there are only 30 occupations in the Position Generator, as a result of which these measures can only show a limited number of different values. The deductive measures show less variation in scores than inductive measures (see Table 3, column 'variation'). Correlations between the measures are almost all positive.

Table 3 about here

Highest accessed prestige is substantially positively correlated with almost all other measures. Because it is almost uncorrelated with *low prestige social capital*, these measures clearly refer to a separate, resource-rich and possibly influential domain within social capital (Table 3). This is also shown in the correlations between *average accessed prestige* and the inductive measures: a higher average accessed prestige means better access to higher prestige social capital, but less access to lower prestige occupations. Table 3 also shows that *average accessed prestige* is relatively independent from social capital diversity: it is unrelated to *range of accessed prestige* and *number of items accessed*. Finally, the measure *total accessed prestige* is positively correlated with all other measures, and even almost identical to *number of accessed positions*.

cumulative scales are reconfigurations of both ends of this scale. For reasons of parsimony, these analyses are not discussed in this chapter.

5 comparison with Name Generator measures

For comparison with Position Generator measures, several social capital indicators were computed from Name Generator data (see Table 4). Since one Name Generator question (item 3, see appendix Table A) referred to negative social relationships, the responses to this question were left out of all calculations.

Table 4 about here

Network size is a typical measure of social capital volume, counting the total number of people mentioned in response to the 12 items. Seven other measures are indicators of social capital diversity, based on alter or relationship characteristics previously discussed by other authors: gender, education, age, and tie strength (see e.g. Campbell et al, 1986; Campbell & Lee, 1991). For gender and education, network diversity measures were calculated as the Standardised Index of Qualitative Variation (IQV) introduced by Mueller & Schuessler (1961; cf. Agresti & Agresti, 1978). For diversity of age and tie strength network-level standard deviations were calculated. To calculate the measure indicating network diversity of tie strength, first a tie strength indicator was constructed as the unweighted sum of the perceived liking, trust and intensity of relationships (α=0.85)[4], similar to Boxman (1992:101-102).

Seen from Burt's (1992) perspective on structural holes, a measure of network density should work as an inverse indicator of network diversity: more disconnected networks give access to more diverse relationships. A density measure was calculated as the fraction of positive relationships between the first mentioned alters to five of the Name Generator questions (for a more detailed calculation of the density measure see Van der Gaag & Snijders, 2003). For the construction of a final network diversity measure it was assumed that each Name Generator item also referred to the exchange of specific resources. Therefore *exchange relationship diversity* was defined

[4]These relationship attributes were all part of the name interpretation part of the Name generator procedure.

as a measure indicating the number of different name generator questions in answer to which at least one alter was mentioned (i.e. the sum score of 12 dichotomised Name Generator items, see appendix Table A). An inductive cumulative scaling analysis (see section 4.2) resulted in a homogenous, reliable subscale for this measure, indicating access to a diversity of work relationships in specific (i.e. the sum score of work-related Name Generator items 1, 2a, 2b, 4, and 5; see appendix, Tables A and C, and Van der Gaag, 2005: ch.8).

An overview of all correlations between Position Generator and Name Generator measures (Table 4) shows that the outcomes of both measurement models have little to do with each other. Higher maxima, ranges, averages and totals of accessed prestige are positively associated with larger networks; the same is true for the number of different exchange relationships present in the social network. Network density, age, and tie strength composition of networks are almost all unrelated to accessed prestige or slightly negatively correlated: networks with higher prestiges are somewhat less diverse in gender, education, and age composition. By contrast, the inductive measure indicating access to lower prestige occupations has low correlations with all other measures.

5.1 comparison with Resource Generator measures

From the Resource Generator model only one deductive measure was calculated: the total number of resource items accessed. Being the sumscore of all items, this measure has characteristics of both a social capital volume and diversity indicator (see Table 5).

Table 5 about here

Several domain-specific social capital measures were constructed in an inductive fashion. Non-parametric cumulative scaling analysis (see section 4.2) identified four social capital subscales referring to specific resource collections present in social networks:

prestige and education related social capital, *political and financial skills social capital*, *personal skills social capital*, and *personal support social capital*. All these scales have medium homogeneity values for H, and all except one show sufficient reliability (see appendix Table C and Van der Gaag, 2005: ch.7; Van der Gaag & Snijders, 2004b).[5]

Measures from the Resource Generator model are more in accordance with Position Generator measures than those from the Name Generator; overall correlations are positive and of medium size (Table 5). Networks in which higher maxima, ranges, averages and totals of prestige are accessed also give access to more diverse social resources (Table 5). There is however variation in the extent to which such networks give access to various kinds of more domain-specific social capital. Position Generator measures are most related to prestige and education related resources, and less to personal skills social capital.

6 discussion

In this study we investigated the measurement properties of the Position Generator for a Dutch population sample by constructing several measures from its data, and making internal and external comparisons of their measurement properties using two alternative measurement instruments. In this discussion, we will focus on two main questions. 1) which measures should be considered using the Position Generator model? 2) which measurement model is most suitable for which research question?

6.1 position generator measures

Similar to earlier findings (Lai et al, 1998; Lin et al, 2001) the three 'traditional' Position Generator measures (*highest accessed prestige*, *range in accessed prestige*,

[5]The reported *four* scales are those that showed sufficient *reliability*. The explorative scaling procedure also identified more fragmented social capital domains, for which additional scales could have been constructed if more different, appropriate items would have been included in the instrument.

and *number of positions accessed*) are substantially positively correlated with one another: networks with higher prestiges also show a larger diversity in occupations. When all three Position Generator measures are used in predictive analyses, this can cause multicollinearity problems. We can think of three general solutions to this problem.

First, as has been proposed and performed by other authors, by calculating an unrotated principal component over all three measures as a single social capital indicator (see Lin et al, 2001; Lin, this volume (?)). However, when correlations between Position Generator measures are very high, a second solution could be to simply omit one or two measures from analyses. For example, in our data measuring an upward reach in social capital besides resource variety in another measure (or vice versa) seems to have limited added value. A third solution is to select a single measure for subsequent analyses. Based on our results, two measures are candidates. *Total accessed prestige* could be a good choice, since this measure is highly positively correlated with all other Position Generator measures, and summarises these similar to an unrotated, first principal component. In addition, it can also have the advantage that its distribution does not deviate much from normality, which for some analyses and interpretations may be problematic with the measures *highest accessed prestige*, *range in accessed prestige*.

More based on theoretical grounds, the use of one single Position Generator measure is selected in the works of Erickson (1996, 1998, 1999, 2004), where generally only the *number of accessed positions* is used in analyses. In terms of validity, this is the most content-free of all Position Generator measures. As stated in the introduction, *highest accessed prestige* and *range in accessed prestige* are social capital indicators focusing strongly on the use of social capital in instrumental actions; diversity in accessed occupations however can also be more generally interpreted as access to a variety of people controlling various resource collections. A good practical argument to use this single measure is that is the simplest for the researcher, because

it does not involve the choice and application of a socioeconomic index or prestige measure associated with occupations.

The social capital researcher should be aware however that using a single social capital measure a priori can mean a loss of potentially interesting information. After all, high correlations between Position Generator measures may not be found for every population. In earlier contributions we have emphasised that including opportunities for more specific social capital measurement, and therefore the use of multiple measures, is more than welcome and can lead to more specific predictions (Van der Gaag & Snijders, 2004a). Therefore, when Position Generator measures *do* correlate highly, a more sophisticated and more informative third option is to choose differently constructed sets of indicators. In our data, a Position Generator measure relatively independent from other measures is *average accessed prestige*: it is only moderately correlated with *range in accessed prestige*, and *number of positions accessed*. This measure could therefore be a valuable addition to the other, more often used measures. It could also be considered as a replacement for the measure *highest accessed prestige*. Its theoretical interpretation is not identical, but close to "the best resource accessed through social ties" (Lin, 2001a:62), and for some social capital questions a reformulation to "*good* resources accessed through social ties" may also be sufficient. For some analyses and interpretations, the *average accessed prestige* measure also has the advantage that its distribution is less skewed than that of *highest accessed prestige*. A disadvantage, however, is that other analyses on our data showed that *average accessed prestige* is also more correlated to socio-demographic variables than other Position Generator measures (Van der Gaag, 2005; ch.6), and therefore a less independent social capital indicator.

Other ways to make Position Generator data more specific and informative for analyses are also available. In this chapter and elsewhere (Van der Gaag & Snijders, 2004a), we have already suggested that dimensional analyses of measurement items, leading to more domain-specific measures in an inductive way, may lead to better

predictions of the goal-specificity of social capital. Scaling analyses performed on Position Generator data (Van der Gaag, 2005: ch.6 and the present chapter) showed that multiple domains can be distinguished in accessed occupations. Differential access to each of these domains may be directly linked to access to the specific resource collections of the holders of these occupations. Specific measures for access to each of these domains may therefore be promising social capital indicators. However, in our data the structure of social capital measured this way is fragmented, and it is difficult to construct reliable, homogenous measurement scales from a limited number of Position Generator items not specifically designed for such analyses. However, Völker & Flap (elsewhere in this volume) follow a different approach to this problem, by disaggregating the occupational prestiges of Position Generator items into separate indicators for specific financial social resources and cultural social resource collections.

When the social capital researcher considers the use of the Position Generator but is still in the stage of planning data collection, another innovation may also be considered. Erickson (2004) used a Position Generator with separate questions for knowing men and women in several occupations. Based on the idea that knowing a man or woman in a certain position may give access to different resources, this is also an option to retrieve more specific social capital information from survey questions.

The Position Generator used in this chapter is also subject to improvements. When respondents are asked to report ties in each of the categories family, friends, or acquaintances, usually the widest access to occupations is found through acquaintances (Erickson, 1996; Völker & Flap, 1999). Also in the Netherlands acquaintances are the most diverse and numerous fraction of social networks (Van der Gaag, 2005: ch.5, ch.8). The finding in the present chapter that the widest variation of occupations is accessed through family members must therefore result from the used interview methodology. In retrospect, coding only the strongest relation through which positions are accessed is a design flaw that limits the researcher in options for analyses and hampers the interpretation of results, and should be avoided.

A final advice for future users of the Position Generator is to include a large enough number of occupations in the instrument. This has the regular advantages of more reliable estimations of measures, but the use of larger numbers of items may also lead to less skewed distributions of some measures (see above). Finally, the suggested dimensional analyses on Position Generator items are only feasible when larger numbers of items are available: at least 15–20, but preferrably more.

6.2 comparison of measurement models

We also considered other social capital measurement instruments besides the Position Generator. An overview of the relationships between social capital measures from different measurement instruments showed that these refer to different aspects of social capital, or—more carefully put—at least tap different cognitions from respondents, since their mutual correlations are low. Especially relationships between Position Generator measures and Name Generator measures were found to be weak.

In the Netherlands, having a social network with more diverse members regarding age, gender, education and the strength of relationships maintained does not seem to be related to having access to network members with higher prestiges. Only having a larger social network is correlated with Position Generator measures; larger networks contained alters with higher (average) prestiges, larger ranges in prestige, and more variety in occupations, a finding also reported by others (Lin, 1999; Lin et al, 2001). However, some of these findings are also very logical, and hence somewhat trivial: if all relationships present in the population would be randomly distributed over networks, larger networks would also show higher maxima and ranges of prestige, because they have a larger chance to include relationships with the highest and lowest prestiges, respectively. Also, the correlation between social network size and the diversity of potential exchanges with network members is only partly interesting: within a certain range, it is logical that giving a positive answer to more Name Generator questions leads to more network members listed.

More interesting for social capital research is that our results show that larger networks include higher average prestiges of network members, and that networks including persons with higher prestiges and wider ranges in prestige show more variety in both network exchanges and access to more specific collections of concrete social resources. This is emphasised by the finding that accessing lower prestige social capital shows much smaller correlations with access to various resources. Access to prestige- and education-related social capital is most strongly related to Position Generator measures, which emphasises that the Position Generator model (consistent with its purpose) puts more emphasis on measuring resources that figure in the 'big issues' in social capital related to instrumental action: unequal distributions in human and financial resources underlying social mobility and inequality. Measures of personal, instrumental assistance on a practical level show lower correlations with Position Generator measures, while the lowest correlations are found with general skills social capital. Since most people in our sample indicated access to these social resources, this can be understood as that access to them is independent from other characteristics of networks members: they can easily be found in any network.

Summarised, these findings make the idea that 'larger networks are better' somewhat more explicit in terms of actual resources, although an interpretation of the causal order of these associations must remain tentative with the present, cross-sectional data.[6]

6.3 conclusion: a proposed measurement strategy

Since each social capital measurement instrument taps information of different quality within a general population sample, the social capital researcher should be very aware of the choice of instruments when planning measurements for specific studies. Based on our findings, in Table 6 we suggest a tentative, parsimonious measurement strategy for social capital researchers.

[6] A second wave of the SSND data collection is under development.

The most general questions, about whether there is *any* effect of the presence of social networks on an outcome of interest, can be answered with any instrument. In our results, network size, all Position Generator measures, and most Resource Generator measures are all positively correlated. If our findings can be replicated for other populations, such measures should all be able to detect the most basic of social capital effects. This could then also be a confirmation for the use of older datasets, that often have been collected with name generators. However, it should be reminded that single social capital indicators cannot detect whether there are either goal specific, or more general 'castor oil' effects of social capital (Flap, 2002; Van der Gaag & Snijders, 2004a). For the collections of new data for general questions, the Position Generator may be the most economical choice, since its construction and administration are the easiest of all instruments. Of its derivative measures *number of accessed positions* is the most content free and easiest to construct, and therefore the most useful for general questions.

When studying effects of social capital on *instrumental* action in specific, the use of a Position Generator and the calculation of multiple, derivative measures is a good choice. Our results showed that its derivative measures are also correlated to the actual presence of available social resources in social networks, but are unrelated to network structure and network relationship heterogeneity. When separate social capital effects are expected from access to network prestige and network variety, choosing alternatively constructed indicators from the Position Generator (such as the average accessed prestige) may offer some methodological advantages over traditionally used measures. When a parsimonious, single measure version is desired, the *total accessed prestige* measure or an unrotated principal component over various measures are good measurement choices. When new data are going to be collected, versions with gender specific and/or larger numbers of items have advantages.

For the investigation of *expressive* actions with social capital, the Position Generator offers limited possibilities. If it is the only instrument available or af-

fordable, using the single measure *number of accessed positions* appears to be the most valid, since it refers the least to occupational prestiges in specific. However, even then underestimations of social capital useful in expressive actions are possible (see introduction). For the investigation of social capital in expressive actions it may therefore be worthwhile to construct a version of a Resource Generator, listing various social resources possibly useful in any domain of individual goal attainment. From the resulting data, separate domain-specific measures may then be constructed in a deductive or inductive fashion (see Van der Gaag & Snijders, 2004a). For parsimonious use in analyses, also a single sumscore measure over applicable items may be used.

Finally, the social capital researcher may want to investigate both 'castor oil' and goal-specific effects on outcomes of interest *without* a special interest in either instrumental or expressive actions. This most elaborate social capital question may be performed with either a Resource Generator or a Name Generator / interpreter combination; of these the Resource Generator is the most economic in use. When general social capital is studied, the construction of both instruments can be a challenge, however with the danger of incomparability between studies. Conducting an elaborate Name Generator study with various name interpretation questions (that may include information about any social resource) also remains an option. Such queries can be customised to provide answers to questions about any social capital dimension: alters, relationships, resources, and the availability of resources. When specific questions about the influence of network structure on social capital outcomes need to be studied, it is also the only measurement option, since it is the only method that identifies network members. However, its costs remain considerable.

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Table 1: Position Generator items, associated occupational prestige and socioeconomic indicator values, and item responses (Survey on the Social Networks of the Dutch (SSND), 1999-2000; N=999).

		prestige		*% 'yes'*	*relationship if yes (%)*			
item #	*"Do you know[1] anyone who is a/an"*	*U&S[2]*	*ISEI[3]*		*acq.*	*friend*	*family member*	*scale[4]*
11	lawyer	86	83	47	40	25	35	h
1	doctor	84	87	50	41	19	40	h
15	policy maker	82	70	45	33	28	39	h
3	engineer	76	68	65	24	21	56	
17	information technologist	68	70	66	30	27	42	
7	manager	67	69	66	21	27	52	h
6	director of a company	67	69	71	24	24	52	h
10	trade union manager	66	65	17	57	20	23	
14	scientist	65	71	42	26	28	46	h
4	higher civil servant	64	61	53	35	21	44	h
9	estate agent	64	61	31	59	20	21	
12	mechanic	63	59	69	23	20	57	
8	teacher	62	66	73	23	26	51	h
18	police officer	54	50	42	53	20	28	
19	secretary	52	53	67	32	26	42	
20	insurance agent	52	54	40	53	19	28	
13	book-keeper/accountant	52	51	63	37	22	40	
16	musician/artist/writer	45	64	54	30	31	39	
22	nurse	44	38	75	26	22	52	
26	engine driver	44	26	18	41	17	42	l
30	hairdresser	39	30	48	53	20	27	
2	cook	39	30	46	40	24	36	
23	farmer	36	43	50	34	17	49	
21	foreman	27	25	26	39	18	43	
25	postman	26	39	28	57	17	26	
24	lorry driver	26	34	50	41	17	42	
27	sales employee	22	43	62	28	23	50	l
29	cleaner	20	29	35	52	15	33	l
28	unskilled labourer	15	26	38	41	17	42	l
5	construction worker	15	26	66	34	18	48	l
	average	41	43	50	38	22	41	

[1] As a minimum criterion of 'knowing' a person who could give access to each of the 30 occupations, the respondent was asked to imagine that when accidentally met on the street, he or she would know the name of that person, and both could start a conversation with each other. Occupations were coded using the standard classification for occupations of the Dutch Central Bureau of Statistics (CBS, 1993).
[2] Sixma and Ultee's 1992 measure for occupational prestige (Bakker et al, 1997).
[3] ISEI socioeconomic index measures (Ganzeboom & Treiman, 2003).
[4] Inclusion in inductive scale: h = high prestige social capital; l = low prestige social capital (see also Table 2).

Table 2: Distribution characteristics of social capital measures from Position Generator items (Survey on the Social Networks of the Dutch (SSND), 1999-2000; N=989-996).

deductive measures[1]	*min*	*max*	*mean*	*st.dev.*	*dist.*[2]	*skewness*	*reliability*[3]	*homogeneity*[4]
highest accessed prestige	26	87	79.83	9.17	0.11	-1.32	-	
range in accessed prestige	0	62	52.14	10.50	0.17	-1.34	-	
number of positions accessed	0	30	15.04	5.60	0.19	0.00	0.81	0.18
average accessed prestige	15	72	51.67	6.82	0.08	-0.55	-	
total accessed prestige	0	1,522	781.40	301.87	0.20	-0.11	-	
inductive measures[5]								
high prestige social capital	0	7	4.46	2.29	0.29	-0.19	0.74	0.34
low prestige social capital	0	6	2.67	1.63	0.27	0.12	0.61	0.31

[1] Deductive measures calculated using ISEI indices (Ganzeboom & Treiman, 2003).
[2] Standardised distribution defined as standard deviation of measure rescaled to range 0-1.
[3] Cronbachs α for *number of positions accessed*, reliability measure *rho* (estimated by the MSP scaling programme) for the inductive measures.
[4] Homogeneity measures calculated as Loevinger's H (see text).
[5] Inductive measures were constructed using non-parametric cumulative Mokken scaling (see e.g. Sijtsma & Molenaar, 2002). *High prestige social capital* is a cumulative scale indicating access to a scientist, policy maker, lawyer, medical person, higher civil servant, manager, director of a company, and teacher. *Low prestige social capital* is a cumulative scale indicating access to an engine driver, cleaner, unskilled labourer, hairdresser, sales person, and construction worker. For construction of these measures see text and Van der Gaag (2005: ch.6).

Table 3: Correlations between social capital measures from Position Generator items (Survey on the Social Networks of the Dutch (SSND), 1999-2000; N=989-996).

deductive measures[1]	*highest prest.*	*range prest.*	*# pos. acc.*	*aver. prest.*	*total prest.*	*high prest.*	*low prest.*
highest accessed prestige	**1**						
range in accessed prestige	**0.87**	**1**					
number of positions accessed	**0.51**	**0.64**	**1**				
average accessed prestige	**0.60**	**0.28**	**0.10**	**1**			
total accessed prestige	**0.62**	**0.67**	**0.97**	**0.33**	**1**		
inductive measures[2]							
high prestige social capital	**0.70**	**0.62**	**0.72**	**0.60**	**0.84**	**1**	
low prestige social capital	0.06	**0.32**	**0.65**	**-0.49**	**0.47**	**0.13**	**1**

Pearson correlations, $p \leq .01$ in bold.
[1] Calculation of deductive measures used ISEI indices (Ganzeboom & Treiman, 2003).
[2] Inductive measures were constructed using non-parametric cumulative Mokken scaling (Van der Gaag, 2005: ch.6). *High prestige social capital* is a scale indicating access to a scientist, policy maker, lawyer, medical person, higher civil servant, manager, director of a company, and teacher ($0.33 \leq H_i \leq 0.37$). *Low prestige social capital* is a cumulative scale indicating access to an engine driver, cleaner, unskilled labourer, hairdresser, sales person, and construction worker ($0.29 \leq H_i \leq 0.33$).

Table 4: Correlations between social capital measures from Position Generator items and Name Generator items (Survey on the Social Networks of the Dutch (SSND), 1999-2000; N=1,004).

Position Generator measures[1]		Name Generator[2] measures							
		deductive measures							*inductive measure*[3]
		network size	IQV of gender	IQV of education	st. dev. age	st. dev. tie strength	network density	exchange relationship diversity	work exchange relationships
	type								
deductive	maximum prestige	**0.20**	**-0.11**	-0.08	-0.07	-0.01	-0.03	**0.17**	**0.10**
	range in prestige	**0.21**	**-0.12**	-0.06	-0.05	0.00	0.00	**0.17**	**0.11**
	number of positions	**0.25**	-0.08	**-0.09**	-0.03	0.02	0.01	**0.25**	**0.19**
	average prestige	**0.16**	**-0.09**	**-0.15**	-0.06	-0.02	-0.05	**0.16**	**0.11**
	total prestige	**0.28**	**-0.10**	**-0.11**	-0.05	0.02	-0.01	**0.27**	**0.21**
inductive[3]	high prestige	**0.27**	**-0.12**	**-0.11**	-0.08	0.02	-0.06	**0.25**	**0.20**
	low prestige	0.08	0.00	0.00	0.02	0.02	0.08	0.07	0.07

Pearson correlations, $p \leq .01$ in bold. For calculation methods of individual measures see text.
[1] Position Generator measures referring to prestige scores based on ISEI values (Bakker et al, 1997).
[2] The Name Generator comprised of 13 items capturing network exchange relationships across various life domains; for calculations 12 positive items were used (see appendix, Table A).
[3] Inductive measures were constructed using non-parametric cumulative Mokken scaling for Position Generator (Van der Gaag, 2005: ch.6) as well as Name Generator data (Van der Gaag, 2005: ch.8).

Table 5: Correlations between social capital measures from Position Generator items and Resource Generator items (Survey on the Social Networks of the Dutch (SSND), 1999-2000); N=1,004) .

Position Generator measures		Resource Generator measures[1]				
		deductive measure	*inductive measures*[2]			
	type	# items	prestige & educ.	political & financial	personal skills	personal support
deductive	maximum prestige	**0.37**	**0.43**	**0.25**	**0.09**	**0.21**
	range in prestige	**0.38**	**0.40**	**0.25**	0.03	**0.23**
	number of positions	**0.46**	**0.44**	**0.34**	0.06	**0.27**
	average prestige	**0.28**	**0.39**	**0.20**	**0.13**	**0.13**
	total prestige	**0.50**	**0.51**	**0.37**	**0.08**	**0.29**
inductive[2]	high prestige	**0.48**	**0.52**	**0.35**	**0.11**	**0.28**
	low prestige	**0.17**	**0.09**	**0.13**	-0.03	**0.12**

Pearson correlations, $p \leq .01$ in bold.

[1] The Resource Generator comprised of 33 items capturing general, acceptable social capital across many possible life domains, worded in concrete resource terms (see appendix, Table B).

[2] Inductive measures were constructed using non-parametric cumulative Mokken scaling for Position Generator (Van der Gaag, 2005: ch.6) as well as Resource Name Generator data (Van der Gaag & Snijders, 2004a/b). *Prestige and education related social capital* included knowing persons having good contacts with media, owning a holiday home abroad, having knowledge of literature, earning $\geq$ Dfl.5,000 monthly, having senior highschool education, or higher vocational training; *political and financial skills social capital* included knowing persons being active in a political party, having knowledge about governmental arrangements, and knowledge about financial matters; *personal skills social capital* included knowing persons reading professional journals, owning a car, speaking or writing a foreign language, and being able to work with a PC; *personal support social capital* included knowing persons who can give good references when applying for a job, who can give advice in case of conflicts with family members or at work, who can help when moving house.

Table 6: Proposal for parsimonious measurement strategy in social capital studies (basis: Survey on the Social Networks of the Dutch (SSND), 1999-2000).

study emphasis	*multiple measures*	*single measure version*
general (including use of less-specific, older data)	domain-specific measures constructed from available data	PG; number of accessed occupational or alternate positions RG or similar data; total number of accessed resources NG; network size or number of accessed exchange relationships
instrumental actions	PG; range and average accessed prestige, number of positions accessed PG; deconstruction of occupational prestige in social financial and cultural resources RG; domain-specific measures	PG; total accessed prestige PG; unrotated principal component over traditional measures [1] RG; total number of accessed resources
expressive actions	RG; domain-specific measures	PG; number of accessed occupational or alternate positions RG; total number of accessed resources
instrumental and expressive actions; goal specificity	RG; domain specific measures PG; deconstruction of occupational prestige in social financial and cultural resources NG; explicit name interpretation in terms of social resources	N/A
network structure and specific relationship constituents	NG studies	NG studies

NG = Name Generator / interpreter combination; PG = Position Generator; RG = Resource Generator
[1] Highest accessed prestige, range in accessed prestige, number of accessed positions.

Table A: The SSND Name Generator items and responses: percentage of sample who mentioned at least one alter per item, range, mean and standard deviations of numbers of alters mentioned per items (Survey on the Social Networks of the Dutch (SSND), 1999-2000; N=1,004).

	"Do you know[1] *anyone who..."*	% 'yes'	*number of alters mentioned*			
			min	*max*	*mean*	*std. dev.*
1	helped you get your current job	27	0	2	0.3	0.47
2a	gives advice on problems at work	73	0	8	1.4	1.31
2b	you give advice regarding problems work	65	0	13	1.7	1.75
3	disturbs you in doing your job	28	0	5	0.4	0.70
4	you work together with often	71	0	7	1.4	0.94
5	is your boss	68	0	4	0.7	0.54
6	helped you get this house	28	0	5	0.3	0.51
7	helps you with small jobs around the house	88	0	6	1.7	1.30
8	keeps a spare key to your house	81	0	6	1.5	1.20
9	is your direct neighbour	88	0	6	1.8	0.98
10	you go to for social visits	94	0	14	3.9	2.09
11	you talk to about important matters	87	0	14	2.4	1.97
12	is another person important to you	49	0	10	0.9	1.30
	average	65			0.9	

[1] As a criterion of 'knowing' a person associated with each of the 13 exchange Name Generator items, the respondent was asked to imagine that when accidentally met on the street, he or she would know the name of that person, and both could start a conversation with each other (see also Van Der Gaag & Snijders, 2003). For calculation of social capital indicators, answers to item 3 were not included.

Table B: The SSND Resource Generator and responses: percentage of sample who mentioned at least one alter per resource item in any relationship, and strongest relationship when known (Survey on the Social Networks of the Dutch (SSND), 1999-2000; N=1,004).

		% 'yes'	*if yes, access through*			
	"Do you know[1] *anyone who..."*		acq.	friend	family member	scale[2]
1	can repair a car, bike, etc.	83	16	18	66	
2	owns a car	87	0	3	97	g
3	is handy repairing household equipment	72	12	17	71	
4	can speak and write a foreign language	87	4	11	84	g
5	can work with a personal computer	90	2	9	89	g
6	can play an instrument	79	10	16	74	
7	has knowledge of literature	70	9	23	67	p
8	has senior high school (VWO) education	87	6	14	81	p
9	has higher vocational (HBO) education	94	6	13	82	p
10	reads a professional journal	78	7	13	81	g
11	is active in a political party	34	34	26	39	e
12	owns shares for at least Dfl.10,000[3]	54	11	21	67	
13	works at the town hall	42	44	23	34	
14	earns more than Dfl.5,000 monthly	76	10	19	71	p
15	own a holiday home abroad	41	34	26	41	p
16	is sometimes in the opportunity to hire people	65	21	23	57	e
17	knows a lot about governmental regulations	69	23	25	52	
18	has good contacts with a newspaper, radio- or TV station	32	36	24	41	p
19	knows about soccer	80	7	16	77	
20	has knowledge about financial matters (taxes, subsidies)	81	15	22	64	e
21	can find a holiday job for a family member	61	29	23	47	
22	can give advice concerning a conflict at work	73	22	32	46	s
23	can help when moving house (packing, lifting)	95	4	17	79	s
24	can help with small jobs around the house (carpenting, painting)	91	9	20	70	
25	can do your shopping when you (and your household members) are ill	96	11	24	64	
26	can give medical advice when you are dissatisfied with your doctor	56	20	31	48	
27	can borrow you a large sum of money (Dfl.10,000)	60	3	13	84	
28	can provide a place to stay for a week if you have to leave your house temporarily	95	2	15	83	
29	can give advice concerning a conflict with family members	83	3	33	64	s
30	can discuss which political party you are going to vote for	65	5	27	68	
31	can give advice on matters of law (problems with landlord, boss, or municipality)	64	24	32	44	
32	can give a good reference when you are applying for a job	65	37	37	26	s
33	can babysit for your children	57	12	17	71	

[1] As a minimum criterion of 'knowing' a person who could give access to each of the 33 resource items, the respondent was asked to imagine that when accidentally met on the street, he or she would know the name of that person, and both could start a conversation with each other.
[2] Inclusion in domain-specific social capital subscales: p = prestige and education related social capital; e = political and financial skills social capital; g = personal skills social capital; s = personal support social capital (see also Table 5 and Van der Gaag & Snijders, 2004b).
[3] A Dutch guilder was equal to about half a euro or dollar.

Table C: Scale characteristics of social capital measures from SSND Name Generator and Resource Generator items (Survey on the Social Networks of the Dutch (1999-2000); N=1,004).

	min	*max*	*mean*	*st.dev.*	*dist.*[1]	*skewness*	*reliability*[2]	*homogeneity*[3]
Name Generator								
deductive measure								
exchange relationship diversity	0	12	8.47	2.51	0.19	-0.66	0.68	0.29
inductive measure[4]								
work exchange relationships	0	6	3.33	1.96	0.16	0.80	0.84	0.65
Resource Generator								
deductive measure								
# items accessed	2	33	23.56	5.54	0.17	-1.01	0.84	0.23
inductive measures[5]								
prestige/education related SC	0	6	4.01	1.46	0.24	-0.79	0.68	0.48
political and financial skills SC	0	3	1.84	0.93	0.31	-0.45	0.54	0.47
skills/general resources SC	0	4	3.44	1.01	0.25	-1.96	0.70	0.48
personal support SC	0	4	3.19	1.00	0.25	-1.08	0.61	0.40

[1] Standardised distribution defined as standard deviation of measure rescaled to range 0-1.
[2] Cronbachs α for the deductive measures, reliability measure *rho* (estimated by the MSP scaling programme) for the inductive measures.
[3] Homogeneity measures calculated as Loevinger's H (see text).
[4] Inductive measure constructed using non-parametric cumulative Mokken scaling (see text). This scale included knowing at least one alter who helped get the current job, gives advice on problems at work, receives advice regarding problems work, the respondent works together with often, or is her/his boss (see also appendix Table A). For construction of this measure see text and Van der Gaag (2005: ch.8).
[5] Inductive measures constructed using non-parametric cumulative Mokken scaling (see text). *Prestige and education related social capital* included knowing persons having good contacts with media, owning a holiday home abroad, having knowledge of literature, earning $\geq$ Dfl.5,000 monthly, having senior highschool education, or higher vocational training ($0.36 \leq H_i \leq 0.82$); *political and financial skills social capital* included knowing persons being active in a political party, having knowledge about governmental arrangements, and knowledge about financial matters ($0.44 \leq H_i \leq 0.48$); *personal skills social capital* included knowing persons reading professional journals, owning a car, speaking or writing a foreign language, and being able to work with a PC ($0.45 \leq H_i \leq 0.55$); *personal support social capital* included knowing persons who can give good references when applying for a job, who can give advice in case of conflicts with family members or at work, who can help when moving house ($0.34 \leq H_i \leq 0.45$; see also appendix Table B). For construction of these measures see text and Van der Gaag (2004: ch.7).