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# Assessment and development of social competence: introduction to the special issue

## Abstract

*Social competence is regarded as an important goal of education in both fami-ly and school. As prosocial behavior presumably emerges by observing success-ful models, social competence can also be seen as a major qualification of parents and teachers. Developing sound instruments for the assessment of social compe-tence constitutes the first step in studying both the development of social compe-tence and its impact on other crucial outcomes of education and psycho-social de-velopment.*

*The editorial section of this special issue discusses two areas of research prob-lems. First, social competence as a comprehensive construct bears problems of definition (Herrmann, 1976) and therefore raises questions on how to gain em-pirical evidence on theoretically derived facets of social competence. This issue is addressed by the concepts of multi-dimensionality, personality, developmental change, and cultural context as well as the reference to different perspectives on social competence (e.g., normal vs. clinical perspective). Secondly, the demands of assessing social competence are discussed in terms of measurement methods (e.g., behavior rating vs. behavior observation), the maximization-optimization dilemma at item level, numerical vs. evidential score variation, and lack of lev-el-II units.*

## Keywords
*Social competence; Validity; Study design*

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# Erfassung und Entwicklung sozialer Kompetenz: Einführung in das Themenheft

## Zusammenfassung

*Soziale Kompetenz gilt als zentrales Ziel und Wirkung sowohl familiärer als auch schulischer Erziehung sowie der Einflüsse von Peer-Interaktionen in der Freizeit. Da soziale Kompetenz vermutlich primär durch Beobachtungslernen erworben wird, müssen die für Kinder bzw. Schüler verfügbaren signifikanten Modellpersonen (Eltern, Lehrkräfte) gleichfalls über erhebliche soziale Fähigkeiten verfügen. Die Entwicklung von Instrumenten zur Erfassung sozialer Kompetenz stellt den Ausgangspunkt dar, um sowohl Entwicklungsmerkmale sozialer Kompetenz als auch Effekte sozialer Fähigkeiten auf schulfachliche Bildung untersuchen zu können.*

*Im Editorial dieses Themenheftes werden zwei grundlegende Problemkreise diskutiert. Zunächst geht es um die Frage, wie ein solch breites Konstrukt definiert (Herrmann, 1976) und entsprechende Definitionen empirisch geprüft werden können. Diese Frage untersucht folgende Aspekte: Multidimensionalität des Konstrukts, Bezugnahme zu Persönlichkeitskonstrukten, entwicklungsbedingter Konstruktwandel, kulturelle Kontextgebundenheit und die Konstruktbearbeitung aus verschiedenen Perspektiven (z. B. klinische vs. nicht-klinische Perspektive. Der zweite Teil erörtert die Herausforderungen an die Empirie, die sich auf die instrumentelle Erfassung sozialer Kompetenz (z. B. Verhaltenseinschätzung vs. -beobachtung), das Maximierungs- vs. Minimisierungsdilemma auf Itemebene, die Analyse numerischer vs. faktenbasierter Varianz sowie den Mangel an Ebene-II-Untersuchungseinheiten im Mehrebenendesign beziehen.*

## Schlagworte

*Soziale Kompetenz; Validität; Untersuchungspläne*

## 1. Relevance and general challenges of studying social competence

Educational science considers social competence as a basic outcome of education received in family and education institutions. But empirical research in this area has to deal with a variety of problems. This may be due to several reasons.

Social competence is a comprehensive construct with various facets which refer to cognitive, emotional-motivational, and behavioral aspects (Kanning, 2003). In addition, social competence develops in multiple contexts, in both formal (e.g., pre-school institutions and schools) and informal education (e.g., family education, sports and other leisure groups, peer activities). To cover these sources of impact, a number of settings and variables should be considered. From a psychometric perspective, broadly defined constructs are likely to be multi-dimensional and

can only be represented by a single score if the construct is of hierarchical nature. Concerning social competence, study designs have to include multiple measures covering the various facets of the construct. Furthermore, investigating effects of educational settings and strategies on social competence as a multiple dependent variable and thereby possibly including mediating variables is even more complex.

Educational research offers different means to address these problems. At the theoretical level, defining and elaborating the construct should provide for a network of some major concepts and within these concepts for a hierarchically structured set of subordinate concepts. At the empirical level, measures to capture these multi-dimensional structures should be spelled out in a way that meets the criteria of sufficient reliability and validity. Within this framework, studies might broaden the knowledge in certain areas of social competence – on the one hand as a predictor of other important variables (e.g., mental health, emotional well-being, academic achievement) and on the other hand as an intended outcome of the education process itself. Nearly all studies presented in the special issue of this journal look at the development of children and students. For instance, acquiring prosocial behavior as a part of social competence presumably emerges by observing successful models (see overview by Eisenberg, Fabes, & Spinrad, 2006). Social competence therefore can also be seen as a major qualification of parents and teachers. This aspect is addressed in the study of Kanning, Böttcher, and Herrmann on teacher students' social competencies included in the present special issue.

It has to be admitted that no single study can cover the whole range of the important variables. Reviewing the relevant literature and analyzing available studies by meta-analyses offers further access to scientific progress by including various measures of social competence. Nevertheless, most meta-analyses in this field were predominantly conducted to answer specific questions. For instance, referring to several formerly conducted meta-analyses, Nowicki's (2003) meta-analysis was concerned about social competence (e.g., teacher ratings of social skills, peer nominations and ratings, self-perceived social acceptance) of children with learning disabilities in comparison to low- as well as average- to high-achieving children (inclusive classrooms). Renk and Phares (2004) investigated the concordance of multiple informant ratings of (various) social competence measures. Concerning the question of school readiness, a meta-analysis by La Paro and Pianta (2000) studied cross-time correlations of cognitive as well as of social measures, assessed in preschool or kindergarten and later on in first and second grade. Besides, it has to be seen that numerous studies capturing measures of social competence are related to clinical psychology or developmental psychopathology focusing on very specific and oftentimes small subpopulations.

## 2. Elaborating the construct of social competence

Regarding the construct of social competence, several attempts have been made to clarify the concept – all of them emphasizing the multi-facet nature of the construct. Social competence is described as the ability to effectively make and maintain positive social outcomes by organizing one's own personal and environmental resources. Most frequently cited is the Rubin and Rose-Krasnor (1992) definition: Social competence is "*the ability to achieve personal goals in social interaction while simultaneously maintaining positive relationships with others over time and across situations*" (p. 285). This is quite in line with the definition provided by Riemann and Allgöwer (1993). In the special issue of this journal, the article of Lindner-Müller et al. reviews more deeply existing literature concerning construct definition.

It seems to be clear that social competence has close relationships to both personality constructs and theories of skill development. Regarding personality traits, the variety of developmental conditions and situations cannot to be spelled out – traits arise by reason of multiple factors and experiences during the course of life. In contrast, skills are developed by practice and therefore primarily rely on learning processes. As the construct of social competence is bound to both, some crucial problems exist which may not be resolved easily and without significant trade-offs.

### 2.1 The multidimensional nature of the construct and the informative value of testing model fit

Similar to nearly all personality constructs, social competence is considered to be multidimensional, which usually is addressed by instruments providing both, a total score and single scores for each subscale. A crucial problem that comes along with measuring a multidimensional construct is reaching a sufficient overlap of the relevant subscales, i.e., considerable intercorrelations, whereas at the same time adequate distinctness of the sub-constructs is usually sought after. The latter implies that the total score is a mixture of moderately related components. The most common assumption in psychological and educational research is that significant human experiences generate cumulative effects that can be represented by the general linear model. Predicting future behavior is possible by adding the weighted aspects of present behavior; this is what regression analysis does.

In the absence of a broadly defined multi-dimensional scale representing the global construct of social competence, only single measures of social competence can be analyzed. This leads to the problem of summarizing single research data within a common framework. In the present issue of this journal, research from Germany, Finland, Switzerland, and the US comes together. The operationalization of the main construct is done in different but theoretically convergent ways.

Statistically, structural equation modeling (SEM) offers some possibilities concerning the beforehand mentioned problem. In a sense, this approach seems to be opposed to some basic ideas of classical test theory, but it can work: Using only a few items or some subsets of items (at least two, done by parceling) as manifest variables may allow for the estimation of a latent variable that is deemed not only to represent the construct but also to preserve a true score without any measurement error. However, extending this strategy to the level of a multi-dimensional construct (consisting of several sub-constructs) might be connected with various problems of fitting such complex models (Geiser, 2010).

Fitting structural equation models is mostly a process of lots of unsuccessful trials and one or some successful outcomes. Because scientific progress is sought after on the side of fitting models, usually the reader of journal articles learns little about all the hypotheses that could not be confirmed although this might be valuable information about what to avoid in modeling one's own data set. From the standpoint of decision-making, non-significant model test statistics do not prove the appropriateness of the null hypothesis; they merely tell us that the null hypothesis could not be rejected. There is no easy way around this problem. A demanding perspective would be to require that stating a fitting model should be accompanied by reporting all models of similar structure that were found not to fit. Nachtigall, Kroehne, Funke, and Steyer (2003, p. 14) propose it as follows: "The best we could expect from SEM is evidence against a poor model but never a proof of a good one. There is always a multitude of equivalent models and researchers are strongly advised not to stop with a good model but to test several competing models against each other".

Three of the studies presented in this special issue employ structural equation modeling. The studies of Junttila et al., Frey et al., and Lindner-Müller et al. provide theoretical evidence for the conclusion that the reported fitting models are highly reasonable. This seems to be the most common solution to the above mentioned problem of decision-making amongst a variety of models that might come into question.

## 2.2 The overlap with other proximal personality constructs

Several attempts have been made to extend the highly general construct of intelligence to more specific areas of human behavior. The concepts of social intelligence (cp., Süß, Weiss, & Seidel, 2005) as well as social-emotional competence (cp., Denham, 2006) have been crafted. At least for one reason it remains quite unclear whether it is fruitful to incorporate the concept of social intelligence into the concept of social competence. Intelligence has always served as a predominantly cognitive and human performance related measure. In contrast to social competence, intelligence can hardly be fostered by training and therefore has hardly ever been used as a dependent measure. All studies presented in the special issue of this journal do not refer to concepts of social intelligence.

However, the relationship between intelligence and social competence remains not unspecified. The article by Frey et al. in this special issue addresses this question empirically. Scales measuring explicitly social competence aspects do not show significant correlations to a widely used intelligence test. This is in line with results from other studies. Anyhow, as intelligence predicts a lot of learning processes' outcomes, this construct is expected to be positively related at least to those aspects of social competence which can be fostered by training.

Whether the broad construct of social competence has considerable overlap with highly generalized personality constructs as, e.g., the so called Big-Five, is a matter of both theoretical work on specifying the construct and empirical evidence. Riemann and Allgöwer (1993) found convergent correlations indicating overlap as well as specificity.

## 2.3 The developmental change of the construct's structure

There seems to be some evidence for the assumption that social competence evolves by mastering the social demands of family, school, and peer group environment. Since children's access to social settings is dependent of their age – e.g., cognitive learning in peer groups occurs mainly at the age of school entry and going out with peers of the opposite sex occurs mainly in the puberty – social behavior patterns are likely to be broadened in the respective age groups. Modeling questionnaire data usually leads to a change in the dimensional structure of the construct when entering demanding items that cannot be regarded as harder versions of those ones already available for younger age-groups and therefore other contexts.

Arnold, Lindner-Müller, and Riemann (2012) provided an overview of the instruments available to assess social competence from the age of Kindergarten to adulthood. Looking at the various scales and dimensions of this large amount of research and projects (e.g., skills training), they concluded that a comprehensive instrument – particularly concerning the assessment of a broader age range – is not yet available. Further research might investigate if selected items representing the basic dimensions of (a) adaptation, and (b) assertiveness in social interaction could be applied covering a broader age range.

For measurement purposes, a changing of the dimensional structure of the construct bears a threat to the comparability of data for different age groups. It also imposes restrictive burdens on longitudinal designs that should be checked for measurement invariance, which is requested for latent change and latent growth curves models (Geiser, 2010).

Modeling scales within the Item Response Theory framework might practically overcome this problem by linking adjacent age specific scales through anchor items, but this is only possible if the age-specific scales represent the same underlying construct, which should be proven by identical dimensionality.

All studies presented in this special issue operate within a certain age group. This may also be due to the above mentioned restrictions of age dependent changes in the construct. To date, we must see us far away from providing a single instrument capturing social competence from early childhood through adulthood.

## 2.4 Cultural context and culturally bound values of social competence

Social interaction is driven by the interacting partners' needs and goals that may be the same, different but complementary, or different and conflicting. How to cope with these differences and how to negotiate a solution is a major facet of social competence. Besides individual preconditions, cultural bound values and norms direct and influence these processes.

Intercultural psychology (e.g., Hofstede's concept of cultural dimensions; Hofstede, 1991) holds that individualism vs. collectivism refers to major differences between Western and Far Eastern societies. Assertiveness therefore seems to be a culturally bound facet of social competence that is of less importance in more collectivistic societies. It may even be argued that individualistic societies are less conducive to the development of social competence. Therefore, it might be a culturally bound attitude to look for compromises and not to force the interaction partners to give up their goals, for example, by employing physical, psychological or institutional power. These different value patterns might also occur *within* cultural groups and – if they appear in a pronounced manner – might indicate insufficient socialization. To cover all these value aspects by a single instrument is very difficult to achieve.

## 2.5 The normal vs. clinical perspective

Some clinical symptoms or syndromes (e.g., behavior disorders, delinquent behavior) are mainly defined by either insufficient social competence or harmful social actions. For most children and adolescents, items covering antisocial or delinquent behavior (e.g., violence, robbery, extortion, damage to property) are not informative because these behavior patterns are never shown. Assembling items of this kind to an instrument, extremely high item difficulty parameters (low agreement) are likely to occur in a normal sample. Most of these items would be dismissed from the scale because otherwise, an unwanted floor effect would result.

For children or adolescents suffering from behavior disorders, a lot of items covering the normal range of social behavior might not be informative because these children either cannot master what is expected as an adequate social behavior or they may know how to act adequately but cannot decide to do so. What is really difficult to develop is a single scale measuring social competence on a continuum that at its lower end is not described by categorical items listing clinical symptoms. However, Merrell and his research group were successful in assembling

items of positive social behavior to a scale (see the article of Nese et al. in this issue). From the standpoint of psychometrics, it would be obvious that mastering only the "easiest" items in social competence inventories should indicate that these persons are at risk for behavior disorders.

Most of the studies presented in the special issue of this journal explicitly address the "normal perspective" in developing an instrument assessing social competence. The work by the Merrell group shows that this can be achieved by following the concept of "strength-based assessment" that refers to the prevention of maladaptive behavior and mental illness. The Social-Emotional Assets and Resilience Scale (SEARS; Merrell, 2008) is already available. However, its comprehensiveness limits the purpose of a screening device used in schools to identify students at risk and provide them an intervention program. The study presented in this issue demonstrates how, for screening purposes, a short form can be constructed. The study of Lindner-Müller et al. explicitly looks at abilities and skills that work beyond the level of clinical syndromes. This also holds for the item selection process in the study of Frey et al., which draws on existing instruments covering non-clinical constructs. The instrument developed in the study of Perren et al. partly includes the clinical perspective. In their "tri-level model of social competence and psychosocial adjustment", facets of "health and well-being" are integrated. The objective of the social competence measures presented in the study by Juntilla et al. is to predict "psychosocial well-being" and therefore clinical symptoms.

## 3. Assessing social competence

There are different assessment strategies to reflect the multidimensional and interactive nature of the construct. Concerning the design of a study, one least demanding strategy is to capture measures of self-perceived social relations. This could be extended by assessing the social relatedness of the focal child or adolescent: Members of the prominent groups he or she is part of are asked to give ratings on the focal person. Thereby, using sociometric techniques demands for assessing (almost) all group members; as a consequence, the nested structure of the samples (e.g., children in classes or groups in early child care) has to be considered. Furthermore, using multi-informant assessments leads to the consequence of either conceiving two or three or even more variables (e.g., self-assessment, teacher rating, parent rating; also peer rating, external expert rating). In case of being dependent, these variables are to be analyzed simultaneously in a MANOVA framework or function as multiple effect variables in structural equation models (SEM).

The following points discuss some basic methodological problems that may not have a straightforward solution but a compromise as it usually happens within the psychometric framework. It is hard to avoid the bandwidth-fidelity dilemma and divergent conclusions when it is to enhance either internal or external validity of a study.

## 3.1 The behavior observation vs. behavior rating perspective

The general purpose of scientific research is to record behavior for grouping single acts to behavior patterns, predicting subsequent behavior in the same situation and in similar situations, and perhaps also predicting behavior in a large variety of situations. Of course, to have both behavior records and ratings is the best solution to the problem, but this is a very ambitious, costly, and sometimes not a manageable endeavor. Applying rating scales seems to be a more economic way to capture the construct. In this case, multi-informant measures are recommended although cross-informant correlations are usually low to moderate.

None of the studies presented in the issue of this journal include direct observation measures. A broad multi-informant framework – self-ratings of students, ratings of peers (only in the study of Juntilla et al.), teachers, and parents – is implemented in the study of Juntilla et al. and Perren et al.; Lindner-Müller et al. capture ratings from teachers and students. Frey et al. as well as Kanning et al. work with self-assessment data.

## 3.2 The maximization-optimization dilemma

As for many personality constructs, it also holds for social competence that the scales cover a variable range that extends between a minimum and a maximum. In contrast to achievement scales, however, the maximum value of a social competence scale must not represent the optimal value of the respective variable. This can be shown, for example, for assertiveness as one major component of social competence. Persons who are extremely assertive often embarrass their interaction counterparts by some kind of commanding and selfish behavior, which is likely to lead to unbalanced outcomes when resources are short. Therefore, an above-average, but nevertheless moderate score on assertiveness might be most appreciated in social interactions: These persons communicate what they intend to do and what they want to attain and they also persist in pursuing their intentions, but they also look at the intentions of the others and seek some kind of overall satisfying outcome. The basic problem was also addressed in social psychology and personality theory concerning the controversy over situational behavior specificity and generality of personality constructs (see e.g., Patry, 1991).

## 3.3 The divide between evidential and numerical score variation

Advances in statistics have provided a powerful means to answer questions that were hard to address by traditional analysis of variance and its underlying logic of an experimental design. Correlational designs have turned out to be informative for causal analyses when using path models and – this is debated – at least two points of measurement. Longitudinal data can be processed in an elegant manner by us-

ing either HLM-techniques handling measurement points as level I (i.e., within-person) data, estimating individual growth curves that may rely on all or at least two data entries.

Furthermore, structural equation modeling provides strong means for analyzing longitudinal data. The most interesting features may be (a) the possibility to simultaneously analyze dependent and independent variables at the level of predictor variables (i.e., direct and indirect effects) and (b) using latent change models to circumvent the unreliability problems of score differences within classical test theory.

## 3.4 The multilevel approach and the lack of level-II units

It is easy to claim that all studies in the education system should consider the nested nature of the data. However, to disentangle teacher effects from school and classroom composition effects remains to be an unsolved problem. Multilevel modeling in studies focusing on classroom learning effects is usually not very informative because the number of level II units within a school is almost extremely small. In Germany, the number of parallel classes within each school usually does not exceed four in elementary schools. Secondary schools usually are larger but even the largest institutions do not work with more than six parallel classes. It seems not reasonable and has never been addressed by a study that schools might differ more in social competence as an outcome of their education than teachers do, provided that the effects of family education have been controlled.

All articles included in the special issue of this journal capture their data within the units of the education system. Concerning achievement data, the differences found between schools are relatively small in countries with a state financed and controlled education system (see for an overview Scheerens & Bosker, 1997). It seems conclusive that social outcomes of schooling might be even less affected by system variables. Regarding the model learning opportunities in schools, teacher variables and classmates might be the crucial factors leading to differences in social competence between classes. However, it is not easy to disentangle teacher- from classroom- and year group-effects (Luyten, 1994; Arnold, 2002). In the study of Kanning et al., an instrument of how to capture teachers' social competence is developed.

## 4. Studies included in this special issue and perspectives of further research

This special issue of the Journal for Educational Research Online (JERO) brings together research groups from different countries in Europe and from the US.

*Frey et al.* were successful in developing and administering a questionnaire to German fourth graders in a large international survey study (TIMSS 2007). Using

confirmatory factor analysis, the study tested sound hypotheses on the nature of the construct and thereby proved its validity. It was also possible to assemble a 9-item teacher version of the instrument and thereby providing data within a multi-informant design.

The study by *Lindner-Müller et al.* developed and captured measures of social competence during the first four years of elementary schooling in Germany. First, measurement invariance over time of the social competence measures was examined. This is generally of considerable interest in longitudinal studies and especially in this study because the assessment mode was adjusted age-appropriately. Secondly, in a longitudinal cross-lagged panel design, further validation was carried out by analyzing reciprocal relationships between social self-concept and social-preference measures.

In Finland, *Junttila et al.* managed to assemble parallel items assessing social competence from the perspective of students, their parents, and their teachers at the end of childhood and during adolescence, which mirrors the multi-informant measures coming from clinical-psychological research on behavior disorder (e.g., Achenbach's scales CBCL, TRF; SDQ). Predictive validation was shown by the impact of social competence on later socio-emotional well-being and thereby, the importance of social competence as a protective or risk factor of mental health is demonstrated.

The study of *Perren et al.* addressed social competence within a clinical-psychological perspective. The construct definition is based upon the distinction of two main facets of social competence: self- and other-related social skills. This comes closely to the basic theoretical assumption that social competence includes both adaptation and assertiveness in social interaction. Assessing children at the age of 6 and 12 years in the German speaking part of Switzerland, differential predictive validity of the two facets could be shown for internalizing (e.g., depression) versus externalizing syndromes (conduct problems) of mental health.

*Kanning et al.* applied the construct of social competence to study student teachers' preparedness for their future education tasks in the classroom, which is considered as a basic job qualification. They developed the self-description questionnaire FIBEL providing a self-assessment facility for teacher student candidates. The validity of the instrument was proven by convergent and discriminant measures. Results showed that the generality of the "personality paradigm" of teacher qualification was only partially appropriate and considerable specificity has to be assumed.

Taken together, the studies included in this special issue provide a broad picture of how to define and assess the concept of social competence in different age groups, which can be done by using different informants and multiple measurement points in time. All studies capture questionnaire data that are validated by different methods. Construct validity is proven by dimensionality analysis in both the framework of manifest variable correlation analysis and latent variable modeling. Criterion related validity is scrutinized by relating social competence to mea-

sures of success in education and to indicators of psychosocial well-being and mental health.

The methods employed in the studies demonstrate that considerable progress has been made in the field of capturing measures of non-cognitive outcomes of education. This will foster the shift from primarily looking on academic learning in schools to schooling as a process of personality development and "Bildung", which is the German notion of general education. The public education system is the largest and perhaps also the most important learning opportunity for the social demands of societal life. This is simply the case because in highly developed countries, families usually are small groups with few children mostly of different ages and predominated by adults. In contrast, schools bring together all the children of a community offering the opportunity to interact and learn in larger groups.

The results of the presented studies will also contribute to enlarge the area of research and development programs. To prevent social behavior problems, a lot of concepts have been crafted and worked out into more or less wide spread programs (for an overview see Semrud-Clikeman, 2007; Lindner-Müller, 2008). The most common ones might be in the Anglo-Saxon countries: "Social Problem Solving Training", "I Can Problem Solve", "PATHS-Curriculum", "CASEL", and "Second Step". In the German-speaking countries, the program "Faustlos" has received a lot of attention. The research group of Petermann has developed several intervention and prevention programs.

All these programs have to provide empirical evidence for the intended effects. The instruments presented in this special issue can work as useful tools to measure *comparatively* the outcomes of those programs at a general level that might be supplemented by testing procedures that are more closely related to the learning goals of the individual programs.

## In memoriam

Dr. Kenneth Merrell, professor of psychology at the University of Oregon, Eugene, is one of the authors of this special issue. He died August 19, 2011. This did not happen unexpectedly as he had suffered from a severe illness for years. The scientific community has lost one of the most outstanding researchers in the field of social development and school psychology.

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