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Published in:

Gio-Gruppe-Interaktion-Organisation-Zeitschrift fuer angewandte organisationspsychologie

DOI:

[10.1007/s11612-021-00592-8](https://doi.org/10.1007/s11612-021-00592-8)

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version

Publisher's PDF, also known as Version of record

Publication date:

2021

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

Scholtens, S., Petroll, C., Rivas, C., Fler, J., & Thege, B. K. (2021). Systemic constellations applied in organisations: a systematic review. *Gio-Gruppe-Interaktion-Organisation-Zeitschrift fuer angewandte organisationspsychologie*, 52(3), 537-550. <https://doi.org/10.1007/s11612-021-00592-8>

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Systemic constellations applied in organisations: a systematic review

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Accepted: 2 July 2021 / Published online: 3 August 2021
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Abstract

This article—published in the Journal *Gruppe. Interaktion. Organisation.*—presents a systematic overview of the current empirical evidence of the effectiveness of the systemic constellation method when applied in organisations.

Although the systemic constellation method is increasingly used for team coaching, organisational development and transformation processes, among others, scientific evidence on the effectiveness and quality of this method is still scarce. This may hamper the broader implementation of a potentially useful approach. Altogether, ten electronic databases were searched up to January, 2020. Multiple languages, qualitative and quantitative designs, and academic and grey literature were included. The search resulted in the identification of 79 potentially relevant publications, seven of which were prospective and 13 were retrospective effectiveness studies in terms of organisational outcomes. Only two of the seven prospective studies used a controlled design. This review concludes that the empirical evidence on the systemic organisational constellation method points toward a potentially effective intervention in the organisational context. However, it is too early to make firm conclusions as the number of studies was small and quality of the studies was low in general.

The present systematic review summarises the literature on the systemic constellation method applied in organisations. It offers coaches and consultants insights into the method from a scientific perspective and describes potential mechanisms of action regarding the intervention. The results of the review provide a solid basis for future research and give directions for new studies to support quality improvement and help us better understand the factors influencing effectiveness.

Keywords Systemic intervention · Systemic organisational constellation · Team coaching · Organisational transformation · Organisational consultancy · Systematic review

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Systemaufstellungen in Organisationen: Eine systematische Übersicht

Zusammenfassung

Dieser Artikel – veröffentlicht in der Zeitschrift *Gruppe. Interaktion. Organisation.* – bietet einen umfassenden, systematischen Überblick über die aktuellen empirischen Belege für Systemaufstellungen bei der Anwendung in Organisationen. Obwohl Systemaufstellungen zunehmend für Teamcoachings, Organisationsentwicklung und Transformationsprozesse verwendet werden, sind wissenschaftliche Belege für die Wirksamkeit und Qualität dieser Methode immer noch rar. Dies kann ein Hindernis für die breitere Umsetzung eines potenziell nützlichen Ansatzes sein. Insgesamt wurden bis zum Januar 2020 zehn elektronische Datenbanken durchsucht. Es wurden mehrere Sprachen, qualitative und quantitative Designs sowie akademische und graue Literatur eingeschlossen. Die Suche identifizierte 79 potenziell relevante Veröffentlichungen, von denen sieben prospektive und 13 retrospektive Wirksamkeitsstudien in Bezug auf Organisationsziele waren. Nur zwei der sieben prospektiven Studien verwendeten ein kontrolliertes Design.

Diese Übersichtsarbeit legt nahe, dass Systemaufstellungen in Organisationen eine potenziell wirksame Intervention in der Organisationsberatung darstellen. Für endgültige Schlussfolgerungen ist es jedoch noch zu früh, da die Qualität der empirischen Studien im Allgemeinen gering war. Die vorliegende systematische Übersicht fasst die der Literatur zu Systemaufstellungen in Organisationen zusammen. Sie bietet Trainern und Beratern Einblicke in die Methode aus wissenschaftlicher Sicht und zeigt mögliche Wirkmechanismen in Bezug auf die Intervention auf. Die Ergebnisse der Überprüfung bieten eine gute Grundlage für zukünftige Forschung und uns zu einem besseren Verständnis der beeinflussenden Faktoren von Wirksamkeit zu verhelfen.

Schlüsselwörter Systemische Intervention · Systemische Organisationsaufstellung · Team-coaching · Organisatorische Transformation · Organisatorische Beratung · Systematische Überblick

1 Introduction

Over the last decades, the systemic organisational constellation (SOC) method spread around the globe and became more and more commonly used among consultants in diverse businesses and organisational settings (Birkenkrahe 2008; Burchardt 2015; Groth 2004). Systemic organisational constellations aim to make individuals more aware of their social context and allow them to explore perspectives other than their own on organisations, teams or any group of people. For this reason, the method is currently being used—among others—for team coaching, organisational change and transformation processes, leadership development, and stakeholder analyses (Burchardt 2015; Kopp and Martinuzzi 2013; Weinhold et al. 2014). For instance, when team members become more aware of the social context of the team and the organisation, and gain insight in perspectives of others, this may contribute to an improvement in team functioning and support positive change in an organisation. Indeed, a systemic perspective has been suggested to consider as a helpful tool to support organisational changes and transformation processes (Cao and McHugh 2005; Pluta and Rudawska 2016).

Despite the wide-spread use of the SOC method, a scientific perspective on its effects in relation to team or organisational outcomes is still largely absent. This way, consultants, coaches, and participants using the method remain in the dark regarding its quality and usefulness. The lack of information on effectiveness also hampers the imple-

mentation of a potentially useful method (for instance, in regular education) on a global level. It may also result in an incorrect application of the method, which may harm individuals and organisations such as deepening team conflicts (Gminder 2005; Groth 2004; Weinhold et al. 2014).

The method originates from family constellations, that is, the application of systemic constellations focused on the family system (Konkolj Thege et al. 2021; Roevens 2008; Weinhold et al. 2014) used in clinical counselling. Later, the method was further developed and applied to other social systems such as organisations (Stam 2012; Weber and Rosselet 2016). The basic idea behind the SOC method is that organisations, departments and teams can be viewed as social systems. These social systems all consist of complex networks of often informal relations, dependencies, and patterns, which are interwoven with each other in many ways. The SOC method assumes that people have intuitive knowledge about the structures, relations and inter-dependencies in these social systems that is often implicit but which can be made explicit through systemic constellations. Systemic constellations are a visualisation of the social system, using a spatial arrangement of elements (people or objects) relevant to the organisation or the team and its social context. By externalising the elements of the social system, systemic constellations render the inner image someone has of a system in a visible and tangible way.

A full systemic constellation round, called a SOC session, is often applied in a workshop setting with a group of about 10 to 30 participants. The session is led by a trainer,

coach or consultant trained in the SOC method. The participants may come from the same team or organisation but may also be unrelated. During the session, one or multiple issues from the participants are explored using the SOC method. The session aims to give insight on the specific issues that are addressed and allows for (social) learning among the participants. A detailed description of the procedure is described in Online Material 1.

Scientific research on the method is still in its infancy and in the English language academic literature, only a few publications are available (Binder 2005; Groth 2004; Jirásek and Jirásková 2015; Weinhold et al. 2014). Most publications are written in German and are published in books, thus only moderately accessible for the wider scientific community. Also, publications are often descriptive in nature or present pilot data (Weinhold et al. 2014). A review that summarised the evidence on the effectiveness of the SOC method up to February 2012 and included 14 papers, concluded that the systemic constellation method used in an organisational context could improve clarity in organisational dynamics, collegial relationship, self-confidence and trust (Weinhold et al. 2014). Also, the authors suggested that the method could make implicit and informal knowledge explicit and transparent and thereby contribute to better insight and communication on system dynamics. Albeit this review was the first to summarise the scientific evidence on the SOC method, it did not describe the search methodology in sufficient detail, was not peer-reviewed and was published as a chapter of a German-language printed book limiting accessibility to a broader, international audience.

The aim of this extensive, systematic review of the academic and grey literature on the systemic constellation method applied in organisations is to present the current status of the empirical evidence regarding the (perceived) effectiveness of the SOC method in terms of organisational outcomes. This refers to outcomes on the level of the individual (e.g. perceived self-efficacy), the team (e.g. team cohesion) or the organisation as a whole (e.g. organisational climate), in the organisational context. This broad definition has been chosen because research in the area is still in its infancy and thus we did not expect a large number of relevant studies. This way, a basis can be created for future scientific research enabling the development of an evidence-based method, which may also contribute to improved intervention quality.

2 Methods

2.1 Search strategy

We searched the literature up to January 20, 2020. The search algorithm included the term ‘constellation’ in com-

bination with ‘organisation(al)’, ‘team’, ‘system’, ‘systemic’ or ‘structural’. Both singular and plural forms and British and US spelling were used. The terms ‘constellation’ and ‘systemic’ both had to be included, since separately they were not specific enough and led to many irrelevant hits in a pilot search. A concrete outcome to specify (perceived) effectiveness was not added to the search question, because we wanted to include all available organisational outcomes. The following electronic databases were searched: PsycINFO, Embase, Medline, ISI Web of Science, PsycEXTRA, ProQuest Dissertations and Theses Database, Cochrane Library, PSYINDEX, Business Source Premier, and Google Scholar. Search terms were searched for in the Title and Abstract fields wherever this search option was available (e.g. EMBASE) and in title only where it was not possible to extend searches to the abstract (e.g. Google Scholar). We restricted the search to the main publication languages: English, German, Spanish, French and supplemented it with Hungarian and Dutch, because of the active systemic constellation communities in those language areas and the available languages skills in the study team. The list of search terms and database-specific search algorithms can be found in Online Material 2 and 3, respectively. To increase the likelihood of identifying relevant studies from the grey literature, the publication database of the German Society of Systemic Constellations (Deutsche Gesellschaft für Systemaufstellungen, DGfS, www.systemaufstellung.com) and Infosyon (Internationales Forum für Systemaufstellungen in Organisationen, www.infosyon.com), that is, the two largest professional bodies devoted to the study and practice of the systemic constellation method, were searched by hand. Reference lists of all selected publications were also reviewed and searched for relevant publications that did not appear in the above searches. The search was not restricted to publication date. There was no restriction on type of publication or a limitation to peer-reviewed literature; reports, books, theses, articles were all included. Abstracts from conferences were included and considered as full text if they did not overlap with another full publication and contained sufficient details on the research. Studies with both quantitative- and qualitative- as well as mixed design were included.

2.2 Study selection and inclusion criteria

All search results were recorded in a ProQuest RefWorks database. The results were first screened on title and abstract (if available). For potentially relevant publications, full text versions were retrieved and read by one study author. In case of doubt, a second reviewer also assessed the publication. Eligibility criteria for investigating effectiveness were: 1) empirical, prospective design with at least two assess-

ment points ('prospective' meaning that the first assessment was performed before the intervention), and 2) a description of the study design, methodology and assessment tool detailed enough to assess the study. All types of outcomes, either on individual, team or organisational level were included.

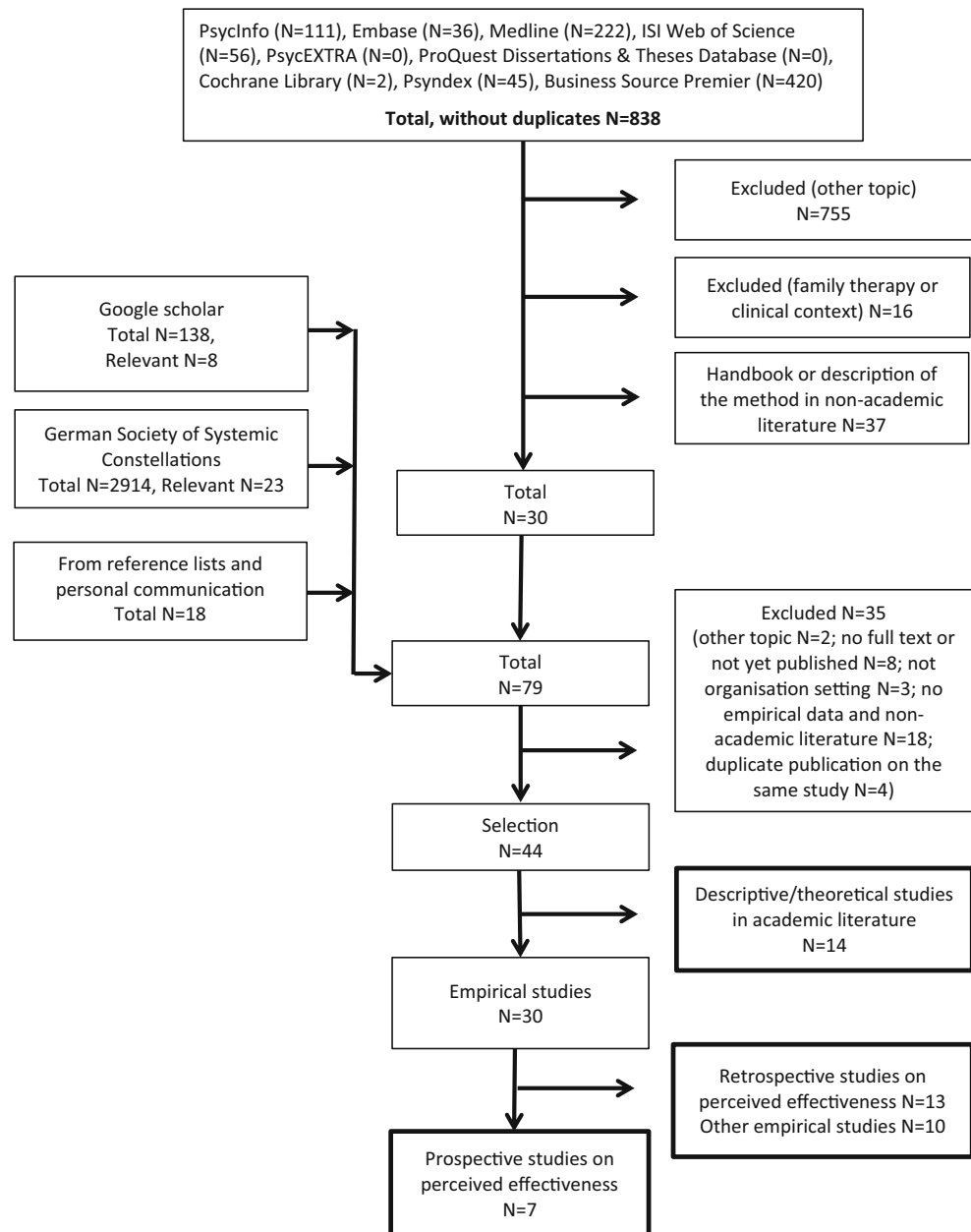
Publications were excluded when the method was applied in a psychotherapeutic setting focusing on individual mental health (cf. 'family constellations'; the results of these studies have been evaluated in the work of Konkoly Thege et al. (2021)). Full texts of publications were obtained via the university libraries, (online) bookstores, emails to the author or institutes where the studies were

performed, the personal network of the authors and the DGfS and Infosyon network.

2.3 Data extraction

The relevant data from the publications were extracted using a data extraction schema that was developed prior to the literature search. This tool included basic details about each publication (authors, year of publication, type of publication, and language), study methodology (study design, place and setting, number and characteristics of the participants, and measures), the intervention, and results. The Mixed Methods Appraisal Tool (MMAT) Version 2018 (Hong et al.

Fig. 1 Flowchart of the literature search and study selection process (studies in the bold frames are included in Table 1 of the review)



2018) was used to assess the methodological quality of prospective studies. Data extraction and coding was done independently by two reviewers. Potential disagreements were resolved in a consensus meeting.

3 Results

3.1 Study characteristics

The literature database search yielded 838 publications of which 30 publications were deemed potentially relevant based on title and abstract (Fig. 1). With Google Scholar ($N=138$), the DGfS hand search ($N=2914$), the reference list search, and personal communication, another 49 possible relevant publications were added, leading to 79 publications of which the authors tried to retrieve the full text version. Of these publications, 44 dealt indeed with the SOC method and were available in full text.

Of the 44 selected publications, published between 2000 and 2019, 30 publications were empirical studies, of which seven studied the perceived effectiveness of the SOC method on organisational outcomes prospectively (Table 1). The remaining 23 empirical studies did not assess effectiveness (eight studies dealt with the way the method is applied by trainers and two studies focused on the underlying mechanism) or assessed effectiveness retrospectively using a single assessment point ($N=13$). Out of the 44 publication, 14 publications were considered as non-empirical academic publications, i.e. theoretical studies, case studies or publications that describe the method or were descriptions of an event or report on personal experience. For the purposes of providing a complete overview of the published empirical studies and academic publications (that is, publications in a journal indexed in the searched databases or derived from an academic origin by being a thesis or dissertation) on the SOC method all 44 publications are presented in Table 1.

3.2 Data on the perceived effectiveness of the SOC method

Of the seven prospective studies, five had a single group, pre-post intervention design and only two studies included a control group (Gutmark 2014; van den Berg and Rovens 2007). Table 2 gives a detailed overview of all seven studies. All studies used different measurements, defined different outcomes and varied in follow-up time. Participants were—among others—consultants, employees, entrepreneurs, managers, and coaches. Study quality varied between studies and was sometimes difficult to assess, due to missing information (MMAT scoring is included in Online Material 4).

The study of Gutmark (2014) was the only study that included a matched control group and scored positive on four out of five MMAT core items (beyond the 2 screening items). The study included employees from different organisations who participated in a 1-day workshop with multiple SOC sessions. Participants completed a questionnaire before the workshop, and 2 weeks as well as 4 months after the workshop. The results showed that participants after the workshop experienced significant, stable improvement in self-reported mental status and perceived quality of organisational climate, particularly in collegiality and perceived action possibilities compared to control.

The study of Van den Berg and Rovens (2007) included a control group as well but this was a convenience control group. In this study, people from the general population took part in a SOC session. Participants completed a questionnaire before and 2 days after the intervention. The data showed that participants of a SOC session experienced significantly larger improvement in insight into how people relate at work and significantly larger decrease in perceived helplessness at work when compared to the members of the control group.

The remaining five studies did not include a control group. Borek (2011a, b) examined the influence of a SOC session on team functioning among 14 teams consisting of in total 67 team leaders and team members from small to medium-sized businesses from various sectors. Participants completed a questionnaire before and 4 weeks as well as 4 months after the SOC session. Four months after the session, participants reported a significant decrease in task and relationship conflict.

In a study on the effectiveness of SOC as an advisory tool, Boland and Michaelis (2006) observed a significant increase in scale scores assessing the development of own perspective and goal setting. Participants all came from a farming context and participated in a 2-day workshop with multiple SOC sessions. Data was collected before and right after the workshop and showed that participants appeared overall more confident and their mood also improved slightly after the workshop.

Based on the analysis of data of 30 employees from different organisations, who participated in a 2 to 3-day workshop with multiple SOC sessions, Schumacher (2000) reported that participants improved in perceived autonomy in work relationships and in conflict management after the workshop. In a study including 13 participants from different work contexts, participants reported increase in perceived self-efficacy 4 weeks after taking part in a SOC session (Kolodej et al. 2016). The study of Lehmann (2006) included 35 consultants who participated in a workshop of 1 to 4 days with multiple SOC sessions. Participants evaluated changes in their situation based on self-defined criteria. Overall, participants tended to improve in their

Table 1 Overview of publications on the SOC method

First author, publication year	Publication type	Language
<i>Prospective studies on perceived effectiveness (N = 7)^a</i>		
Boland (2006)	Non-academic literature	German
Borek (2011a, b) ^b	Academic journal	English
Gutmark (2014)	Doctoral/PhD dissertation	German
Kolodej (2016)	Academic journal	German
Lehmann (2006)	Book	German
Schumacher (2000)	Book	German
Van den Berg (2007)	Non-academic literature	English
<i>Retrospective studies on perceived effectiveness (N = 13)^a</i>		
Assländer (2002)	Non-academic literature	German
Baumgartner (2006)	Doctoral/PhD dissertation	German
Berreth (2009)	Doctoral/PhD dissertation	German
Finckh (2016)	Academic journal	English
Gleich (2008)	Doctoral/PhD dissertation	German
Gminder (2005)	Doctoral/PhD dissertation	German
James (2004)	Report	English
Jurg (2008, 2010) ^c	Doctoral/PhD dissertation	English
Kalb (2007)	Book	German
Klingohr (2012)	Bachelor's/Master's thesis	German
Kumbruck (2005)	Academic journal	German
Pacher (2006)	Book chapter	German
Ruppert (2002)	Book chapter	German
<i>Other empirical studies (N = 10)</i>		
Bultena (2019)	Bachelor's thesis	Dutch
Fasching (2009)	Bachelor's/Master's thesis	German
Knauth (2010)	Bachelor's/Master's thesis	German
Kopp (2013)	Academic journal	English
Mayer (2015)	Academic journal	English
Schlötter (2016)	Doctoral/PhD dissertation	German
Schlötter (2018)	Book	German/English
St John (2018)	Bachelor's/Master's thesis	German
Tenner (2014)	Non-academic literature	English
Wakefield (2014)	Bachelor's/Master's thesis	English
<i>Theoretical studies, case studies or description of the method (N = 14)</i>		
Binder (2005)	Academic journal	German
Birkenkrahe (2008)	Academic journal	English
Bulling (2018)	Doctoral/PhD dissertation	English
Ebbers (2009)	Academic journal	German
Galla (2008)	Academic journal	German
Groth (2004)	Academic journal	German
Heideveld (2014)	Master's thesis	English
Jirásek (2015)	Academic journal	English
Jirásek (2017)	Academic journal	English
Müller-Christ (2015)	Academic journal	German
Roevens (2008)	Doctoral/PhD dissertation	English
Roth (2019)	Academic journal	English
Staicu (2018)	Academic journal	English
Wade (2004)	Academic journal	English

^a 'Prospective studies' refers to studies where the first assessment was performed prior to intervention, i.e. included a pre-measurement. Retrospective studies only collected data after intervention

^b 1 study, 2 publications

^c Academic journal publication and Doctoral/PhD dissertation

Table 2 Prospective studies on perceived effectiveness ($N=7$)

First author, publ. year	Sample and country (% female; age)	Aim	Study design and Method	Intervention and Assessment points	Outcome and instrument	Results and conclusion
Boland (2006)	27 farmers, coaches, university employees Germany (Gender and age not reported)	To what extent can the SOC method be used in a meaningful way within a consulting context to induce change among the participants	Non-controlled pre-post intervention design Questionnaire Self-report	A 2-day workshop where multiple issues from the farming context were addressed using the SOC method. Before intervention (t1), Directly after the workshop (t2)	Perceived clarity on the situation and ability to analyse the situation (Cognitive dimension): Adapted from perceived self-efficacy and action competence scale, 30 items. Mood and self-confidence (Affective dimension): Mood scale (Befindlichkeitskala, Bf-S), 28 opposite adjective pairs with 3 choices (for instance: desperate/hopeful/neither)	Cognitive dimension: Significant increase in item 'development of own perspective and aim'. Effect size and p -values not reported. Affective dimension: Overall, mood did not change. Participants changed significantly towards the direction of being determined, cheerful, imaginative, hopeful, content, and powerful between t1 and t2. Effect sizes and p -values not reported
Borek, (2011 a, b)	67 team leaders and members Austria (42%: not reported)	To evaluate the contribution of the method on improvement of task and relationship conflicts in existing teams	Non-controlled pre-post intervention design Questionnaire Self-report	A SOC session where an issue from an existing team was addressed. Before intervention (t1) 4 weeks post-intervention (t2) 4 months post-intervention (t3)	Task and relationship conflict: Intra-team conflict scale (4 items task conflict; 3 items relationship conflict) Scale on Cooperation (5 items), Communication (6 items), Coordination (6 items), Cohesion (5 items). All 7-point Likert scales	Decrease in task conflict: Mean (SD) t1=4.52 (1.17), t2=4.15 (1.05), t3=3.73 (1.07), t1-t3: $p=0.01$. Decrease in relationship conflict: Mean (SD) t1=5.30 (1.08), t2=4.96 (1.45), t3=4.53 (1.64), t1-t3: $p=0.01$. Effect sizes not reported. Non-sustained change in Cohesion, Cooperation, Communication and Coordination

Table 2 (Continued)

First author, publ. year	Sample and country (% female; age)	Aim	Study design and Method	Intervention and Assessment points	Outcome and instrument	Results and conclusion
Gutmark (2014)	113 (65 with follow-up data) employees from different organizations Germany (53% and 50% at follow-up; 19–64 yrs, mean 42 yrs)	To evaluate whether after a SOC session: <ul style="list-style-type: none"> – general well-being is improved – understanding of social-emotional relationship aspects is improved so they can influence other people better – their workplace and organizational environment judged more positively 	Non-randomized controlled pre-post intervention design Matched control group (waiting list) Questionnaire Self-report	A 1-day workshop where multiple issues from the participants were addressed using the SOC method. Two weeks before intervention (t1) 2 weeks post-intervention (t2) 4 months post-intervention (t3)	Well-being: Stress Symptoms scale (KASSL), 4 subscales: social contact disorders, mood disorders, job difficulties, concentration and performance disorders; General Mental State scale (VEV); two poles: “relaxation, ease, optimism” versus “tension, insecurity, pessimism”. Only assessed at t2 and t3. Directive attitude: Attitude and Interest scale (FDE) consisting of two scales “directive attitude” and “extraversion”. Perceived organizational climate: Questionnaire on Organizational Climate (FEO), 9 subscales	Stress symptoms: Significant decrease in total scale in the experimental group compared to the control group at t1–t2 ($\eta^2 = 0.054$, $p \leq 0.05$) and at t1–t3 ($\eta^2 = 0.167$, $p \leq 0.001$). Significant decrease in mood disorders in the experimental group compared to the control group at t1–t2 ($\eta^2 = 0.077$, $p \leq 0.01$) and t1–t3 ($\eta^2 = 0.240$, $p \leq 0.001$). No significant change in the other scales. General Mental State: In the experimental group a significant change towards “relaxation, ease, optimism” at t2 and t3. Mean (SD) t2 = 194.75 (3.14) and t3 = 202.55 (3.92) ($p < 0.001$). No change in the control group. Attitude and Interest: Significant increase in “directive attitude” in the experimental group compared to the control group: ($\eta^2 = 0.093$, $p \leq 0.05$) and “extraversion” ($\eta^2 = 0.118$, $p \leq 0.01$). Perceived organizational climate: Significant improvement between t1–t3 in the experimental group in Collegiality ($\eta^2 = 0.206$, $p \leq 0.001$); Evaluation of work ($\eta^2 = 0.073$, $p \leq 0.05$); Workload ($\eta^2 = 0.093$, $p \leq 0.05$); Career perspectives ($\eta^2 = 0.022$, $p \leq 0.01$); Action possibilities ($\eta^2 = 0.153$, $p \leq 0.001$); Attitude towards the organization ($\eta^2 = 0.112$, $p \leq 0.01$); No change in Organization, Payment and Gender equality. Between t1 and t2 only significant improvement in Action possibilities. No changes in the control group for any of the scales and measure points
Kolodej (2016)	13 individuals from different work contexts Austria (62%; 32–58 yrs, mean 45 yrs)	To evaluate whether the SOC method is a helpful intervention to improve problem-solving skills with regard to a problem situation in an organizational context	Non-controlled, pre-post intervention design Questionnaire and semi-structured interview Self-report	A SOC session where an issue from a participant was addressed. 1 week before intervention (t1) Directly after intervention (t2) 4 weeks post-intervention (t3)	Perceived Self-efficacy: Perceived Self-efficacy Scale (total score between 10 and 40). Perceived usefulness and effectiveness, self-constructed items	Significant increase in perceived self-efficacy between t1 (mean = 29.67, SD = 0.81) and t3 (mean = 32.63, SD = 0.57) ($p = 0.029$). No significant increase between t1 and t2. Effect sizes not reported. Perceived subjective usefulness of the SOC method (score 0 to 6): Mean (SD) over 3 time points = 4.97 (0.95). Perceived effectiveness of the method (score 0 to 6): Mean (SD) over 3 time points = 4.51 (1.13). Perceived feasibility/implantation possibility of the solutions (sustainability): a mean score of 4 on a scale of 0 to 6

Table 2 (Continued)

First author, publ. year	Sample and country (% female; age)	Aim	Study design and Method	Intervention and Assessment points	Outcome and instrument	Results and conclusion
Lehmann (2006)	51 (35 with follow-up data) consultants, managers, leaders Switzerland, Germany (59%; not reported)	To evaluate: – to what extent a SOC corresponds with perceived reality of the participants. – whether a SOC session contributes to improvement in the issues of the participants	Non-controlled, pre-post intervention design Questionnaire and semi-structured interview Self-report	A workshop of 1 to 4 days with multiple SOC sessions with issues from participants. Before intervention (t1) Directly after intervention (t2) Follow-up (between a few days-7 months) (t3)	Perceived correspondence between the SOC and the subjective reality. Perceived improvement in the situation after a SOC: Participants chose their own solution criteria that were relevant to them (evaluating on a scale from 1–10 their perceived position and their desired position across the criteria at each measurement point)	Participants reported approx. 8 on scale of 0–10 that SOC-image corresponded with reality. Significant increase in central tendency of 'perceived position' on criteria between t1 to t2 ($p < 0.01$), between t1 and t3 some criterion clusters show a significant increase, some do not. Effect sizes not reported
Schumacher (2000)	39 employees from different organizations (30 in analysis) Germany (69.4%; 21–60 yrs)	To evaluate if the SOC method is related with: – improvement of the subjective organizational image – improvement of cooperation at work	Non-controlled, pre-post intervention design Questionnaire Self-report	A 2–3 day workshop with multiple SOC sessions. Before intervention (t1) 4 weeks post-intervention (t2) 4 months post-intervention (t3)	Subjective Organizational Image (SOB), consisting of 2 scales for each relationship: Autonomy (3 adjective pairs on a scale of –3 to 3) and Attachment (3 adjective pairs on a scale of –3 to 3). Team Competency, consisting of 5 scales: Acceptance, Involvement, Transparency, Conflict resolution and Empathy/perspective-taking Connection to work environment	Increase in Autonomy: Mean (SD) $t1 = 55.75$ (21.63), $t2 = 63.04$ (19.24), $t3 = 64.04$ (25.37). Significant increase $t1-t2$ ($p = 0.010$), borderline significant $t1-t3$ ($p = 0.054$). No change in Attachment. Effect sizes not reported. Significant increase in transparency at $t1-t2$ ($p = 0.049$). Significant increase in conflict resolution at $t1-t2$ ($p = 0.016$) and $t1-t3$ ($p = 0.033$). No change in the other scales. Effect sizes not reported
Van den Berg, (2007)	110 people from general population (48 participants; 30 observers; 32 control) Netherlands ('almost equal'; mean 43 yrs)	Do people who participate in a SOC session: – feel more connected with their work? – understand connections and relationships in their work better? – feel less helplessness at work?	Non-randomised, controlled pre-intervention design Convenience control group Questionnaire Self-report	A SOC session 0–2 days post-intervention	Insight into how people relate at work Helplessness at work Attitude towards SOC (only for participants and observers) Self-constructed questionnaire of 35 items, 5-point Likert scale)	Connection to work environment: no change in participants, observers and the control group Insight into how people relate at work: Participants showed a significant increase in insight ($t = 2.18$; $p < 0.05$). Observers showed a significant decrease ($t = -2.48$, $p < 0.01$). No change in CG Helplessness at work: Participant showed a significant decrease in helplessness ($t = -1.81$, $p < 0.05$). No change in the control group or observers Participants showed a significant increase in positive attitude towards SOC ($t = 2.75$, $p < 0.01$). No change in observers

perceived position right after the workshop compared to baseline but the effect disappeared mostly by the second follow-up, varying between days to months of follow-up.

The detailed evaluation of the 13 retrospective studies on the effectiveness of the SOC method are described in Online Material 5. In general, the participants in the studies perceived the method as useful in the organisational context (Assländer 2002; Gleich 2008; Gminder 2005; James and Ingham 2004; Jurg 2010; Kalb 2007; Pacher 2006; Ruppert 2002). In six studies participants reported a change in perspective or being able to see alternative perspectives than their own among after taking part in a SOC session (Berreth 2009; Gleich 2008; James and Ingham 2004; Kalb 2007; Klingohr 2012; Kumbruck et al. 2005).

4 Discussion

This is the first, English-language systematic review on the SOC method. The thorough search of the literature that resulted in seven prospective empirical studies, shows signs of a potentially effective method on organisational outcomes. However, it is still too early to make firm conclusions on the effectiveness of the method because the quality of the studies was low in general, as most studies had no experimental design, there was often no control group included in the study and the number of participants in the studies was suboptimally small. Also, the outcomes, designs and populations of the studies were too heterogeneous to draw a firm conclusion. As most studies lacked a controlled design, the reported effects could be well attributed to factors other than the SOC method. This is in line with the conclusion of the review published by Weinhold et al. (2014).

The two studies with a control group reported improvement in action possibilities or decrease in helplessness (Gutmark 2014; van den Berg and Roevens 2007), which is in line with studies reporting an increase in perceived autonomy (Schumacher 2000) and self-efficacy (Boland and Michaelis 2006; Kolodej et al. 2016). Because the SOC method aims to widen the perception of participants and helps them to see an issue from different perspectives, this may contribute to the notion of improvement in action possibilities for the participant. This possibility to develop new perspectives has been highly valued by participants using the SOC method in other studies (Berreth 2009; Boland and Michaelis 2006; Gleich 2008; Gminder 2005; Kalb 2007; Klingohr 2012).

4.1 Mechanism of action and theoretical basis

Insight in the mechanisms of action or a clear theoretical basis for the SOC method could support the empirical evidence and it would help in designing effective intervention

studies. However, the SOC method was developed from practice and not constructed from a scientific theory or psychological construct (Binder 2005). Many authors did not clearly describe a theoretical framework for their study, nor the mechanisms of action appear to be fully understood yet. To date, only two studies from the same author (Schlötter 2016, 2018) investigated the mechanisms of action of the SOC method empirically. Schlötter studied the consistency of the information retrieved from a systemic constellation between different individuals, and refers to the spatial arrangement of the constellation as a type of non-verbal communication (Schlötter 2016, 2018). Social constructivism and phenomenology are referred to as plausible theoretical frameworks behind the SOC method (Bulling 2018; Gminder 2005; Groth 2004; Kumbruck et al. 2005; Roevens 2008).

Previously, authors have suggested that systemic constellations may be a representation of reality (out of many possible realities) that derives from the inner image of an individual on the social system and that the SOC method may serve as a tool to make this inner image visible (Gminder 2005; Groth 2004; Gutmark 2014; Kumbruck et al. 2005; Pacher 2006; Roevens 2008). This relates to the concept of mental models, defined as organised knowledge structures that allow individuals to interact with their environment and allow people to predict and explain the actions of the world around them (Mathieu et al. 2000). Seen in an organisational context, these mental models probably have shared components among people working closely together (e.g., in teams) and develop (partially) unconsciously when people interact as part of the same social system (Chiappe et al. 2014) resulting in a ‘common picture’ of the situation (Chiappe et al. 2014; Mathieu et al. 2000). Following this line of thinking, a possible explanation for the mechanism of action for the SOC method could be that this shared inner image is made explicit with the SOC method by using the spatial representation of elements. Participants reported that what was shown in the SOC session tended to resemble the situation in real life (Baumgartner 2006; Finckh and Reich 2016; Jurg et al. 2008; Lehmann 2006; Ruppert 2002). By investigating the constellation image and questioning it, individuals presumably develop new perspectives and obtain a new inner image to perceive their organisational context.

This aspect of visualisation and externalizing implicit inner images shows resemblance with methods like Soft Systems Methodology, where Rich Picture Building by means of drawing is the first step in exploring the problem (Checkland 2000). The use of the spatial visualisation, that is characteristic of the SOC method, could be understood by the human capability to interpret social space or interpersonal distance, also called ‘proxemics’ (Hall 1966). People are able to interpret the spatial arrangement between individuals and perceive the social meaning from it, giving them

information on the relationship between people (Hall 1966; Lloyd 2009; Wellens and Goldberg 1978). Obviously, the above described hypothesis needs extensive study.

4.2 Limitations

Unfortunately, the original studies reviewed in the present work assessed vastly different outcome variables and as a result, effectiveness can only be referred to in general terms and cannot be specified (or quantified in a meta-analysis) regarding specific outcomes. Another limitation of this study is that since there is no consistent definition of the method nor a standardised protocol, different methods or variants of the SOC method may be included and compared. The large overlap between the studies however—regarding the description of the method and the theoretical framework—makes it likely that the same method was investigated. Fidelity was not assessed in any of the studies; therefore, this aspect could not be addressed in our review, hampering interpretation of the results.

4.3 Future directions

This review shows that the SOC method might be an effective method in terms of improving organisational outcomes and thus support organisational development and change processes. However, more research is needed to confirm and better understand its effectiveness and the underlying mechanisms of action. We, therefore, suggest the following lines of inquiry for empirical research regarding the applications of the SOC method in organisational consultancy.

First, there is a need for high quality, controlled, prospective studies to assess the effectiveness of the SOC method, preferably with objective outcomes and conducted in different settings. Secondly, we need a better understanding of the mechanisms of action of the SOC method. Experimental studies on the visualisation of the (shared) inner mental image and the use of proxemics might provide further insight. Thirdly, we need better insight into how the SOC method should be learned and taught. Which learning elements need to be addressed and which educational methods should be applied?

Based on the results of such studies, the field could move forward towards a standardised procedure for the use of the method and develop clear guidelines on when and how the method should be employed. As Groth (2004, p. 178) put forward, “The effectiveness of the method makes it necessary to use a SOC responsibly. Even if it is open how [the SOC method] works, every consultant must be aware that it works. In practice, however, it is evident that this sense of responsibility is often lacking”. Here lies a responsibility for the scientific community to help consultants in organi-

sations and beyond to be able to use the method wisely and effectively.

Supplementary Information The online version of this article (<https://doi.org/10.1007/s11612-021-00592-8>) contains supplementary material, which is available to authorized users.

Acknowledgements We would like to express our gratitude to Truus van Ittersum for her advice and support in the literature search. We thank Helena Kuusisto, Jeroen Vermeer and Lisa Kiltz for their participation in discussions regarding the study and critical review of the study and the manuscript. Finally, we are grateful for Audree Francis (volunteer with the Waypoint Research Institute) for the proofreading of the paper.

Funding Open access funding provided by University Medical Center Groningen (UMCG).

Conflict of interest S. Scholtens, C. Petroll, C. Rivas, J. Fler and B. Konkoly Thege declare that they have no competing interests.

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