Professional youth work as a preventive service: towards an integrated conceptual framework

Jolanda Sonneveld\textsuperscript{a,b}, Judith Metz\textsuperscript{a,c}, René Schalk\textsuperscript{b,d} and Tine Van Regemorter\textsuperscript{b,e}

\textsuperscript{a}Centre for Applied Research in Social Work and Law, Amsterdam University of Applied Sciences, Amsterdam, The Netherlands; \textsuperscript{b}Tilburg School of Social and Behavioral Sciences, Tilburg University, Tilburg, The Netherlands; \textsuperscript{c}School of People and Society, Saxion University of Applied Sciences, Enschede, The Netherlands; \textsuperscript{d}Faculty of Economic and Management Sciences, North-West University, Potchefstroom, South Africa; \textsuperscript{e}Faculty of Social Sciences - HIVA, University of Leuven, Leuven, Belgium

ABSTRACT

Knowledge of how professional youth work might prevent individual and social problems in socially vulnerable youngsters is poorly developed. This article presents a conceptual framework that clarifies the implicit methodical process used by professional youth workers and focuses on what stakeholders regard as the potential of professional youth work as a preventive service. A qualitative research synthesis approach was used to combine the findings of six practice-based studies conducted in six European countries. This synthesis revealed that professional youth workers employ a multi-methodic approach in their prevention efforts, strengthening the social skills and self-mastery of youngsters, reinforcing their social network, enhancing their civic participation and helping them find additional social or health services. Twelve methodic principles were identified as contributing to achieving these prevention efforts, shedding light on the process taking place between youngsters and youth workers. This conceptual framework provides essential information for future evaluation research.

Introduction

Within Western welfare states, youth policies and social work practices are paying increasing attention to prevention-focused youth services. These services could promote the well-being and positive development of youngsters (Catalano et al., 2002; Waid & Uhrich, 2020) as well as lead to cost savings for relatively expensive social care services (McCave & Rishel, 2011). Professional youth work in Western welfare states is known as a developmentally appropriate practice that aims to prevent individual and social problems by supporting the personal development and social participation of youngsters. Although professional youth work has often been claimed to have a positive impact on young people’s development, research-based substantiation of the effects of the youth work process on specific outcomes and the positive development of youngsters is poorly developed in the literature (McGregor, 2015; Mundy-McPherson et al., 2012; Williamson & Coussé, 2019).

To address this lack of knowledge, this article develops a conceptual framework that codifies the implicit methodical process used by youth workers and its prevention-focused outcomes.

This was based on practice-based evidence gathered from youth work practices in six European states. Such a conceptual framework is needed for the dissemination of evidence-based knowledge in the field that helps improve the quality and transparency of professional...
youth work as a preventive service. In addition, it offers scholars in the field of professional youth work essential concepts to conduct future evaluation research. Below, we start by describing the context of professional youth work, the participants and characteristics of the methodical process.

**Professional youth work and its participants**

Professional youth work in Western welfare states, performed by paid and well-educated professionals, provides youngsters with opportunities for personal development and social participation with the aim of assisting them to make a successful transition to adulthood (Dunne et al., 2014; Hurley & Treacy, 1993; Metz, 2017). The profession positions its interventions in the leisure time of youngsters, which implies that youngsters participate voluntarily. Usually, this means that youngsters choose whether, how much and for how long to participate in youth work processes, in a wide range of informal contexts in their neighbourhoods (e.g. youth clubs, art/sport facilities, on the streets, social media) (Batsleer & Davies, 2010; Ritchie et al., 2017).

Professional youth work is primary focused on socially vulnerable youngsters in the age range of 10 to 24 years (Dunne et al., 2014). The term ‘social vulnerability’ refers to the structurally vulnerable position of specific individuals or groups in society (e.g. those in deprived neighbourhoods with high levels of crime and poverty) who may have also had negative experiences of social institutions, which often leads to distorted relationships and social disconnectedness (Vettenburg, 1998). Socially vulnerable youth often experience a lack of encouragement and support from people in their social environment (Abdallah, 2017); they grow up in low-income families and have to deal with poverty (Doherty & De St Croix, 2019); and/or they have social and/or mental health problems, such as insufficient prosocial skills, depressive feelings or stress-related illnesses that hinder their opportunity to fully participate in society. The risk of developing problems in their transition to adulthood is significantly higher for youngsters who accumulate negative experiences in their social environment (Vettenburg, 1998), and they are more likely to be in need of relatively expensive, possibly clinical, social work services (Henderson et al., 2016). For these youngsters, professional youth work settings are more than sites for spending their leisure time; they offer a space to escape from the conflicts or pressures of everyday life (school, neighbourhood or home) and in which they might achieve a sense of belonging (Fyfe et al., 2018).

**A multi-methodic approach**

Recognizing the socially vulnerable position of these youngsters in society, professional youth workers support them in their transition to adulthood, which may have longer term positive social returns. The starting point for professional youth work is its focus on the experiences, needs and interests of youngsters (Batsleer & Davies, 2010; McGregor, 2015). In an attempt to immerse themselves in the lifeworld of youngsters, youth workers use an open-ended social pedagogical approach (Metz, 2016; McGregor, 2015; Mercier et al., 2000), which does not involve a pre-planned and time-limited specific intervention but consists of methodical actions that are fluid and responsive to the experiences, specific needs and interests of the youngsters and the changing social and political context in which they arise (Doherty & De St Croix, 2019; Ord, 2014). Taking this open approach, Dutch professionals apply a combination of four commonly used methods within youth work: detached youth work, social group work, individual guidance, and information and advice services (Metz, 2020; Sonneveld et al., 2020).

*Detached youth work* establishes contact with youngsters and provides services in young people’s living environment outside the youth work centre, such as on the streets, in parks, the schoolyard, at home or in fast-food outlets (Milburn et al., 2000). Youth workers employ this method in order to reach out to young people, including those who may need additional support for their developmental issues (Koops et al., 2013).
Second, youth workers organize social group work (e.g. drop-in activities, activities in the domains of culture, media and sport), in which they guide interactions and group processes and contribute to the positive development of both the group as a whole and the individual members of the group (Brown, 1979). Through social group work, professionals offer young people spaces that foster peer sociability, experimental learning (McGregor, 2015; Ord et al., 2018) and the development of new skills, which they need to become independent adults who can assume responsibility (Fyfe et al., 2018; Ord et al., 2018; Rumping et al., 2017).

Third, individual guidance refers to more problem-focused one-to-one interventions on a structural basis. The aim of this method is to assist youngsters in their personal development and social participation and, where necessary, help them to access specialized social care institutions, education, paid work or a residential facility (Bakker, 2011). Individual guidance is a more intensive method than the others, and is especially targeted at youngsters with personal problems/needs they have begun to face or actual longer term problems such as debt, housing problems, school problems and conflicts at home. Youngsters determine their own development goals and make a plan to achieve these goals with the support of the youth worker (Koops et al., 2014). There are some differences between European countries with regard to the provision of individual guidance in addition to a focus on group-based activities (Ord et al., 2018, p. 214).

Finally, the fourth method concerns the provision of information and advice and forms an integral part of the daily interactions between youngsters and youth workers. Based on early signalling by youngsters and their individual needs, youth workers attempt to remove the barriers to accessing information and advice (e.g. through informal conversations, websites, film, theatre, peer counselling) concerning contemporary youth problems, such as sexuality, school issues, drug use or relationships (Faché, 2016). Having access to the right information and having the appropriate skills to find information enables youngsters to make independent and positive choices in life. The application of these methods in combinations is known as a multi-methodic approach (Metz, 2020). By using this multi-methodic approach youth workers provide prevention-focused services that are appropriate and responsive to a diversity of needs, interests and aspirations of those socially vulnerable youngsters who actually engage with youth workers.

**Implicit methodic process**

The methodical process entails that youth workers adopt a well-considered, systematic, goal-oriented approach, which is also ethically and socially justifiable (Sprinkhuizen & Scholte, 2017). However, what youth workers do (their professional interventions) within their multi-methodic approach in order to contribute to the personal development and social participation of youngsters has often been characterized in social work practice as being based on implicit knowledge or practical wisdom (Chun-Sing Cheung, 2016). Polanyi (1966) called this type of knowledge ‘tacit knowledge,’ which can be defined as skills, ideas and experiences of people which have not been codified and may not necessarily be easily or explicitly expressed (Chugh, 2015). Reliance on tacit knowledge about the methodical process used in youth work stagnates the further professionalization of the field, as well as the effective transfer of knowledge to a new generation of youth workers, policy makers and fellow professionals.

**Substantiation of youth work methods**

Over the course of the last seven years, a number of scholars have made cautious attempts to both explicate and substantiate the methodical process employed by professional youth workers as well as the outcomes of the aforementioned youth work methods by conducting practice-based research. One group of Dutch scholars has examined the four different methods (Koops et al., 2013, 2014; Rumping et al., 2017; Schaap et al., 2017) through Program Evaluation, which focused
on the construction of a valid description of the process and outcomes of each individual method, in line with scientific standards and applicable in practice (Rossi et al., 2004).

Ord et al. (2018) focused on young people’s own accounts of the impact of youth work (group-based and/or individual) on their lives in five European countries using a participatory evaluation methodology called ‘transformative evaluation’, developed by Cooper (2018). In addition to outcomes, Fyfe et al. (2018) also provided insights into specific key aspects of youth work practice that contribute to achieving outcomes. These practice-based studies provide valuable suggestions with respect to both process and the outcomes of professional youth work. However, to date, little is known about how the use of a multi-methodic approach in professional youth work might contribute to the prevention of individual and social problems that socially vulnerable youngsters potentially face.

Focus of this study

The objective of this article is to develop a conceptual framework of a multi-methodic approach that clarifies the implicit methodical process of youth work and its possible contribution to the prevention of the individual and social problems of socially vulnerable youngsters. Over the last three decades, several scholars developed schematic conceptual models of youth work practice (e.g. Hurley & Treacy, 1993; Smith, Cooper and White in; T. Cooper, 2012; Dunne et al., 2014). However, these youth work models were primarily focused on how different forms of youth work relate to political ideology, sociological perspectives or professionalization in a specific time period. In addition, older models are often not based on empirical data, which means that these models are insufficiently grounded in youth work practice. A conceptual framework focused on the methodic actions within a multi-methodic approach as well as its contribution to prevention of personal and social problems is currently lacking in extant literature, which is problematic given its potential importance in developing a better understanding of the preventive value of professional youth work. Moreover, further exploration of the methodical process and its outcomes is essential to conduct future evaluation research into a multi-methodic youth work approach (Blom & Morén, 2010). The conceptual framework is developed by drawing on underlying practice-based evidence collected by various qualitative studies in the field of professional youth work. This study synthesizes and interprets the findings of these studies to answer the research question: What are the specific outcomes of a multi-methodic youth work approach that could prevent the individual and social problems of socially vulnerable youngsters and what aspects of the approach may achieve these outcomes?

Methods

Qualitative synthesis research (QSR) was used to construct the conceptual framework. QSR, also known as qualitative meta-analysis, is an approach that makes sense of existing studies by applying an interpretivist perspective to the knowledge available (Howell Major & Savin-Baden, 2010). The method combines primary studies, creating interpretations of the data that constitute a new transformed whole, leading to a conceptual translation, a new representation of the data, or the development of a new theory at a higher level of abstraction (Howell Major & Savin-Baden, 2010; Vermeire, 2009). As valuable studies have already been conducted on different youth work methods (see Introduction), a synthesis of these existing studies offers the possibility to interpret the methodic process of youth work and its possible contribution to the prevention of individual and social problems. In summary, QSR is an appropriate method to develop a conceptual framework that presents an explicit understanding of the multi-methodic approach of youth workers, formulated on the basis of the variables identified and the evidence gathered in studies of youth work.
Sample selection

Previous literature reviews in the field of professional youth work have already revealed the absence of rigorously conducted evaluative research of the methodological process and impact of professional youth work across the globe (McGregor, 2015; Munday-McPherson et al., 2012). A recent narrative review of the available research evidence on the impact and factors contributing to impact of open access youth work upon young people (Hill, 2020) proved helpful in terms of selecting studies that were investigating the same topic. For this narrative review, a total of 49 studies were coded for analysing. Researchers searched in a variety of databases (e.g. ScienceDirect, Web of Science, EBSCO, ProQuest), in grey literature databases, on specific websites and via Google. The key terms guiding the search were: ‘Open access youth work’, ‘Open youth work’, ‘Universal youth work’, ‘Impact’ and ‘youth work’. We combined the results of this search with a search for studies in the Dutch language in Dutch databases as well as conducting a secondary search (e.g. ‘snowballing’).

For our QSR we aimed to obtain a comprehensive sample in which we included empirical studies conducted in professional youth work settings in European Western welfare states that contained qualitative data about the participants (both boys and girls), the methodical process and its outcomes. The method, data handling and analyses used had to be clear to determine whether the studies were methodologically consistent, even if not exactly the same. It was also important that the original researchers had an explicitly acknowledged stance to allow for data interpretations from an informed perspective (Howell Major & Savin-Baden, 2010). We excluded literature reviews, studies that were conducted outside Europe as well as studies that were based on specific target groups or youth interventions.

Six studies matched the selection criteria. The first study (Ord et al., 2018) was recently conducted in five European countries: Italy, Estonia, Finland, France and the United Kingdom. It applied a participatory evaluation methodology called ‘transformative evaluation’, which collated youngsters own accounts of the impact of youth work on their lives. They collected 715 stories in 15 open access youth work organizations. The second study (Fyfe et al., 2018) conducted impact research using the same research design as Ord et al. (2018). They collected 129 stories in three youth work organizations in Scotland. This study is of added interest in that the researchers also provided insight into the role of specific key aspects of youth work practice in achieving outcomes. However, neither of these two studies specifically distinguished the four individual youth work methods introduced above.

The remaining four studies were conducted in collaboration with various stakeholders (youth workers, policy makers and youth work educators) in the Netherlands (Koops et al., 2013, 2014; Rumping et al., 2017; Schaap et al., 2017). The researchers used the same research protocols and instruments in each study, so they are directly comparable as reciprocal translations (Vermeire et al., 2007). In all four studies, data on the methodic conduct by youth workers was gathered through observations of youth work practices and in-depth interviews with professional youth workers (N = 77 in total). The data was analysed using a grounded theory approach (Glaser & Strauss, 1967).

Simple self-report questionnaires completed by the youngsters were used to make an inventory of the added value of the methods for their development. These outcomes were determined by comparing youngsters who participated in youth work settings (N = 259) with youngsters who did not participate in youth work (N = 270). Descriptive statistics (SPSS) were used to analyse data from the questionnaires. The researchers positioned their findings in relation to the professional literature focused on the selected youth work methods (e.g. Batsleer & Davies, 2010; Dickson et al., 2013; Dunne et al., 2014; Jeffs & Smith, 2010; Milburn et al., 2000) and the literature in related professions that work with socially vulnerable youth (such as residential youth care and structured youth programs in the US). For validation, the results were checked by stakeholders via focus groups.

The approaches to professional youth work were partially comparable across countries. All of the studies were conducted in informal settings for boys and girls, which allowed youngsters to be themselves and to express themselves on a voluntary basis. There were also differences between
countries with regard to age range, specific aims and the degree of professionalization (Ord et al., 2018, p. 222).

By bringing together, reanalysing and combining the findings from these six studies, we aim to develop the conceptual framework that interprets how a multi-methodic youth work approach may best contribute to the prevention of individual and social problems.

Process of the synthesis

The process of the synthesis was applied following three stages: analysis, synthesis and interpreting the data (Howell Major & Savin-Baden, 2010). While this process is delineated here in a linear way, the process should be viewed as cyclical and iterative in practice.

To prepare the analyses, we recorded the sample size, setting, methodology, mode of data collection, validity and main themes identified for each of the selected studies (see Table 1). This facilitated a graphic overview of the key components of each study. All studies were read carefully to identify the core concepts related to our research question, namely characteristics of the methodical process and intended or actual specific outcomes that could prevent individual and social problems of socially vulnerable youngsters. Only those findings that were supported by data were extracted in order to maintain the rigour of the study. Using thematic coding, relevant findings from the different studies were labelled by the first author. We used the findings of the original authors (second-order interpretation) as well as the quotations they presented (first-order interpretation) as part of our analyses because the findings were well documented and supported by a sizable amount of evidence (Howell Major & Savin-Baden, 2010). The main themes and second-order interpretations of the data from the six studies of the methodical process and/or outcomes of professional youth work are shown in Table 1. Because the first two authors of the current study were part of the research group that conducted the four practice-based studies in the Netherlands, the translation of the main themes in this analysis was made easier. If relevant, descriptive quantitative data and ‘grey’ literature used by the original studies were also analysed. According to Dixon-Woods et al. (2006), in principle it should be possible and indeed desirable to conduct interpretive synthesis of all forms of evidence, including qualitative studies and ‘grey’ literature. This process of analysing made it possible to compare and identify recurring themes across the studies (Howell Major & Savin-Baden, 2010).

After cross-study themes were identified, we moved towards synthesizing the data: ‘The process of combining themes and categories across studies in order to create a new perspective or view of the issues’ (Howell Major & Savin-Baden, 2010, p. 63). We brought themes from different studies together (without losing sight of the context) and developed third-order interpretations with regard to the methodical process and specific outcomes applicable in a multi-methodic approach. To develop these third-order interpretations, we reviewed important connections between first and second-order themes and ensured that iterative cycles of interpretation occurred (Howell Major & Savin-Baden, 2010, p. 67). We explored how notions about youth work outcomes and the methodical process were used in the different studies and in different contexts to represent a line of argument (Noblit & Hare, 1988) for a conceptual framework that explains how professional youth workers might prevent individual and social problems using a multi-methodic approach.

Findings

In this section, we present the main themes and third-order interpretations based on the synthesis. These main themes related to our research question concern the specific outcomes that may prevent individual and social problems and the characteristics of the methodical process that may influence these outcomes. The conceptual framework of a multi-methodic youth work approach is depicted in Figure 1.
| Study            | Sample size | Setting                                                                 | Method                                                                 | Data collection               | Notion of validity         | Main themes and second order interpretations identified                                                                 |
|------------------|-------------|--------------------------------------------------------------------------|------------------------------------------------------------------------|------------------------------|-----------------------------|--------------------------------------------------------------------------------------------------------------------------|
| Ord et al. (2018) | 715 stories | 15 youth work organizations in United Kingdom France Estonia Finland Italy | Transformative evaluation based on the 'Most Significant Change'       | Storytelling over a year long process | Stakeholders in reflection | Overarching outcomes: relating to others, sense of self, creating places and spaces for young people, social inclusion, experiential learning. |
| Fyfe et al. (2018) | 129 stories | 3 youth work organizations in Scotland Universal community-based       | Transformative evaluation based on the 'Most Significant Change'       | Collecting stories over 11 months by practitioner researchers            | Members of research team checked codes | Practice codes: trusted adult, providing a space to be heard, giving praise and encouragement, working effectively alongside others, practitioners as role models, long-term relationship, negotiated learning, inclusive practice. Outcomes: skills for life, equal and included, friendship, safe and well, able to lead and help others, get on well with others. |
| Koops et al. (2013) | 18 youth workers | 53 participants in youth work 66 youngsters outside youth work (reference group) | Systematic description based on the principles of program evaluation | Literature review 18 in-depth interviews Observations 119 basic questionnaires | Member check Triangulation | Methodic principles: meaningful relationship, engagement with the life world, working with the social environment, rewarding. Outcomes: increased sense of responsibility, socio-emotional skills, and prevention of youth causing nuisance or social problems. |
| Koops et al. (2014) | 22 youth workers | 47 participants in youth work 74 youngsters outside youth work (reference group) | 7 settings in 3 youth work organizations in Amsterdam                  | Literature review 22 in-depth interviews Observations 121 basic questionnaires | Member check Triangulation | Methodic principles: meaningful relationship, adapting to needs, collaboration with the social environment, practical assistance and proximity. Outcomes: strengthen future prospects, referring youngsters to social or health services, increased sense of responsibility and (social) life skills. |
| Rumping et al. (2017) | 14 youth workers | 69 participants in youth work 35 youngsters outside youth work (reference group) | 6 settings in 6 youth work organizations in Amsterdam, Utrecht and Zaandam | Literature review 14 in-depth interviews Observations 104 basic questionnaires | Member check Triangulation | Methodic principles: working with rules, rewarding, one-on-one contact, peer support, drawing on strengths. Outcomes: making friends, prosocial behaviour, strengthen future prospects, self-confidence, increased sense of responsibility. |
| Study                          | Sample size                                                | Setting                                                                 | Method       | Data collection           | Notion of validity | Main themes and second order interpretations identified                                                                 |
|-------------------------------|------------------------------------------------------------|------------------------------------------------------------------------|--------------|----------------------------|--------------------|------------------------------------------------------------------------------------------------------------------------|
| Schaap et al., (2017)         | 21 youth workers                                          | 6 settings in 5 youth work organizations in Amsterdam and Utrecht      | Idem         | Literature review          | Member check       | Methodic principles: meaningful relationship, adapting to needs, collaboration with the social environment, practical assistance and learning by doing.  
Outcomes: strengthen future prospects, information skills, self-confidence, referring youngsters to social or health services, stress reduction, increased sense of responsibility. |
Outcomes focused on prevention

The synthesis of the selected studies grouped outcomes that may prevent individual and social problems of socially vulnerable youngsters into the following areas: social skills, self-mastery, social network, civic participation and finding additional social or health services.

The first shared outcome of professional youth work was the development of *social skills*, which are defined here as skills that youngsters need in order to be able to participate independently and constructively in society. Small snippets of research evidence in our sample suggested that professional youth work contributes to the development of various social skills, such as reducing ‘risk or negative behaviour’ (Ord et al., 2018, p. 128; Rumping et al., 2017; Koops et al., 2013), having respect for others and being better able to interact with other people (Koops et al., 2013, 2014; Ord et al., 2018; Rumping et al., 2017). ‘Some of the young people also described improvements in relationships with adults, including teachers, youth work staff, and family members’ (Fyfe et al., 2018, p. 21).

Second, there were indications that professional youth work enhances the *self-mastery* of youngsters; an important component of psychological empowerment (Zimmerman, 1995). Self-mastery can be defined as the extent to which an individual believes that he or she has control over important life circumstances and stressful situations (Pearlin & Schooler, 1978). An increase in self-mastery through participation in youth work is reflected in the research findings that suggested the youth workers helped strengthen the youngsters’ problem-solving skills (Koops et al., 2014) and their self-confidence in trying new experiences (Fyfe et al., 2018), and assisted them in learning to set personal goals (Schaap et al., 2017), ‘to manage issues such as mental ill health, family conflict and bereavement’ (Ord et al., 2018, p. 130) and to reduce stress (Schaap et al., 2017).

The third outcome that has been attributed to a combination of youth work methods is *reinforcement of the social network*. This not only concerns the number of people (family, peers,
neighbours) within a social network, but also the feeling of belonging and familiarity with other people (Bartelink & Verheijden, 2015). The synthesis revealed that participation in group-based activities enables youngsters ‘to build positive, supportive relationships with their peers’ (Fyfe et al., 2018, p. 17), to make new friends and receive support from peers and other adults, youth workers and members of the wider community (Ord et al., 2018, p. 224; Rumping et al., 2017).

Through detached youth work and individual guidance, youth workers connect youngsters to leisure activities, school or the labour market (Koops et al., 2013, 2014). These opportunities to participate in new social environments allow youngsters to meet new peers or adults, to receive support from these new contacts and gain a sense of belonging.

Fourth, the studies in the sample suggested that youth work contributed to enhancing civic participation, such as volunteering, organizing activities in the neighbourhood and education programs or work. The youth workers succeeded in engaging with youngsters (including those who were otherwise invisible to other social services) and motivated them to actively participate in youth work activities, using the methods of detached youth work and low-threshold group-based activities (drop-in settings) (Koops et al., 2013; Rumping et al., 2017). Through their participation in youth work activities, they developed into more responsible and active citizens. Some youngsters took on leadership roles in the youth work environment (as a role model) or elsewhere (Fyfe et al., 2018).

Finally, youth workers were essential in anticipating personal needs and referring youngsters to appropriate additional social or health services (such as youth care, district social team or doctor), providing timely assistance with new or longer term problems of youngsters (Koops et al., 2014; Schaap et al., 2017; Fyfe et al., 2018; Rumping et al., 2017). Almost all of the studies found that youth workers anticipate these personal needs by providing a listening ear, emotional support or appropriate information and advice and practical help with, for example, applying for social benefits. When youth workers identify that youngsters need additional support for new or longer term social and/or health problems, they refer them to various social services (Schaap et al., 2017).

**Methodic principles**

During our analysis we attempted to identify characteristics of the methodic way of acting, which resulted in the above-mentioned specific outcomes. To explicate this methodic way of acting we built on previous work of the Dutch research group, which had made explicit the ‘tacit knowledge’ employed by youth workers into the four distinct youth work methods.

According to the research group, the methodical conduct of professional youth workers is reflected in methodic principles, which are defined as:

the assumptions or guiding notions that direct the actions of youth workers in interaction with their target groups and their living environments. The youth worker determines how to perform the notion in such a way that it suits with what is present in the situation as well as the personality of the youth worker. (Metz & Sonneveld, 2012)

These principles can be applied separately or in conjunction depending on the situation, goal, individuals and resources available in the given context. This means that youth workers apply a methodical principle that is necessary and appropriate at the time to influence the situation. Comparison of the studies revealed twelve methodic principles.

The first principle is a meaningful relationship. This implies that the relationship between a youngster and the youth worker should be profound and important enough to make a difference in their lives. In concrete terms, this means that youth workers take youngsters seriously, show an interest in who they are, see them as a fully fledged discussion partner and do not judge them. Through both the emotional and physical accessibility of youth workers, they build ‘supportive and nurturing long-term relationships with young people’ (Fyfe et al., 2018, p. 26), in which young people eventually consider them as a ‘trusted adult’ in their lives (Fyfe et al., 2018, p. 24). In most of the studies, a meaningful relationship
was regarded as a particularly important success factor leading to positive outcomes over the course of many years (Fyfe et al., 2018; Koops et al., 2013, 2014; Schaap et al., 2017).

The principle of engagement with the life world implies that youth workers begin with the environment of young people and respect youth cultural styles and forms of expression (such as street language, clothes and social manners) as well as the interests, issues and experiences of youngsters. Starting from this perspective, youth workers aim for youngsters to become receptive to interactions with them and actively participate in low-threshold activities (Koops et al., 2013). Engagement with the life world enables youth workers, unlike other youth professionals, to build a meaningful relationship and to gain insight into young people’s needs, concerns, experiences and challenging circumstances (whether at home, school or in the neighbourhood).

The principle of adapting to the needs of young people implies that youth workers are aware of ‘the young person’s circumstances and needs’ (Fyfe et al., 2018, p. 24). Their support is tailored to the questions, problems, capacities and environment of the youngster (Koops et al., 2014; Schaap et al., 2017). In other words, when deciding on the appropriate professional intervention, youth workers take into account what youngsters want to learn, find difficult or experience in their life world (home, school, leisure). Adapting to the needs of young people could prevent them from ending their participation in youth work prematurely, due to insufficient motivation or a lack of self-direction in the process (Koops et al., 2014).

The principle of learning by doing implies that youth workers provide youngsters with concrete learning experiences under supervision (e.g. instructions and positive feedback). The idea is that youngsters, through experimental learning and self-execution of tasks, develop important skills, increase their responsibilities and are better able to make independent and positive choices in life, especially when these learning opportunities are tailored to the young person’s needs, strengths and interests (Fyfe et al., 2018; Schaap et al., 2017).

The principle of proximity means consciously making use of an existing social similarity (such as the same cultural background, gender, being bullied or growing up in poverty) between the youth worker and the young person (Koops et al., 2014). By referring to this similarity during interaction, ‘young people view youth workers as role models in their lives’ (Fyfe et al., 2018, p. 26). Sharing their own experiences, in combination with their current behaviour and social position in society, they show respect for the youngsters and motivate them to make personal changes.

Drawing on strengths implies that youth workers take a positive perspective on youngsters and their potential; support young people to discover their talents by building on strengths and interests; and help them discover how they can use them in both youth work settings and broader society (Rumping et al., 2017). Drawing on strengths requires youth workers to offer a ‘consistent source of encouragement and support’ (Fyfe et al., 2018, p. 25). By actively encouraging youngsters to seek out and strengthen their qualities, youngsters become more aware of their personal interests and abilities. In particular, using group-based activities, youth workers facilitate opportunities to make youngsters aware of their latent qualities and to build on their strengths and interests (Fyfe et al., 2018; Rumping et al., 2017).

Collaboration with the social environment is a common principle of professional youth work. Youth workers collaborate with parents, family members, other professionals and organizations involved in the young people’s lives. ‘These relationships and practice partnerships helped to form a strong community network and establish foundations for change’ (Fyfe et al., 2018, p. 25). Collaboration with social care institutions also contributes to the timely referral of young people if they are struggling with social or health problems (Koops et al., 2013, 2014; Schaap et al., 2017).

Practical assistance means providing concrete help and support with specific issues, problems, queries and needs of young people, such as assistance in finding an internship or applying for social benefits. Youth workers often use this principle as a motivation strategy. By addressing the specific practical issues faced by a youngster, they experience that the support of a youth worker can yield concrete results, motivating them to continue along a path to positive change.
Working with rules is a principle which is mainly recognized in social group work (Rumping et al., 2017). Youth workers use this principle primarily to maintain social order in youth groups, which contributes to creating a safe environment. However, youth workers also work with rules to make youngsters aware of desired social behaviour. Ideally, youngsters are involved in or are in charge of drawing up such rules themselves. In this way, it also stimulates youngsters to take responsibility and offers them another opportunity to develop social skills.

Rewarding in youth work can be interpreted as providing an incentive (or encouragement) for attendance, participation, commitment or achievements in youth work activities. For example, a reward may consist of a privilege in the group (e.g. a leadership opportunity), a group outing, food or drink, or the use of facilities. These rewards aim to stimulate the desired social behaviour of youngsters (turning up, active participation, helping others) (Rumping et al., 2017).

The principle of one-on-one contact is only recognized in social group work (Rumping et al., 2017) and refers to the conscious demonstration of individual interest in a young person, and it includes elements such as offering ‘praise and encouragement’, a physical touch or a brief individual chat (Fyfe et al., 2018, p. 25). With respect to the personal development of youngsters, it is important that there is time and space within group work for their personal needs, questions and problems, in particular for youngsters who lack this individual attention at home, at school or in peer groups. Youth workers also draw on this principle to influence group dynamics and promote the prosocial behaviour of young people by explaining to them which behaviour is appropriate in the group (Rumping et al., 2017).

Finally, during group-based activities, youth workers use the principle of peer support to stimulate youngsters to help each other by giving practical instructions, emotional support or encouragement, as well as receiving peer support themselves (Fyfe et al., 2018; Rumping et al., 2017). The assumption is that youngsters who can help, support and appraise each other in a peer group setting will gradually do this in other situations. In addition, the development of supportive relationships between group members may contribute to the realization of group goals (Rumping et al., 2017).

Figure 1 presents a comprehensive, integrated conceptual framework for multi-methodic youth work that is focused on prevention.

Conclusion and discussion

The aim of this study was to develop a conceptual framework that clarified the tacit methodical process used by youth workers and its possible contribution to the prevention of the individual and social problems of socially vulnerable youngsters. As a result, we elaborated a multi-methodic approach and outcomes of such an approach. This approach could promote the well-being and positive development of youngsters and may thereby contribute to the lowering of costs of relatively expensive social care services.

Using QSR, this study combined relevant evidence from six practice-based studies in six European countries. The convergence of findings resulted in a conceptual framework (see Figure 1) that directs attention to what stakeholders in the field of youth work regard as the potential of multi-methodic youth work as a preventive service. In addition, this framework presents an explicit understanding of the methodical process that will further contribute to the achievement of prevention.

Research into the specific outcomes of the multi-methodic approach clarified the five ways in which professional youth work expects to prevent individual and social problems within society. First, this conceptual framework suggested that a multi-methodic approach supports the development of social skills, which are essential for young people to function well in society, to promote harmonious relationships and prevent behavioural problems leading to conflicts with others (Bergin et al., 2003). Second, by developing self-mastery, young people gain more control of their lives, which ensures that they can independently solve problems and prevent problems in the future (Laffra & en Nikken, 2014). Third, youngsters who can count on a supportive social network function better, experience fewer problems (Cavanaugh & Buehler, 2015) and are less likely to need social care.
Fourth, civic participation has a positive effect on the well-being of youngsters (Ince, Van Yperen, & Valkestijn, 2018) and offers them the opportunity to be of significance to others in society. Finally, assisting youngsters with problems to access additional social or health services in a timely manner may prevent the accumulation of problems and the need for more expensive long-term care.

These results suggest that a multi-methodic approach offers youth workers not only the opportunity to contribute to the positive development of socially vulnerable youngsters on an individual level, but to also strengthen collective relationships at the level of their informal networks (family, peer group), supportive social institutions and the neighbourhood. The presence of these collective relationships provides socially vulnerable youngsters with protection and support, which may enhance their opportunities and capabilities in society (Catalano et al., 2004).

Twelve methodic principles were identified as contributing to this prevention-based approach, all of which are compatible and workable within the characteristic open-ended approach of professional youth work. These guiding notions shed light on the processes taking place between youngsters, youth workers and the social environment. The comparison of different studies revealed that a number of methodical principles were reflected in all four of the youth work methods identified, while other principles were more specifically related to one method, for example, to group-based activities. Further study of the principles in different countries (in both urban and rural areas) should reveal whether this multi-methodic repertoire can be generalized to a wider diversity of activities and contexts in which professional youth work takes place. It is also plausible that some principles, such as peer support and drawing on strengths, would be recognizable and valued in adjacent professional disciplines, such as after school youth programs or residential youth care.

We recommend that future evaluation studies with a large sample of youngsters should be undertaken to investigate: 1) to what extent the intended outcomes of a multi-methodic youth work approach are achieved, 2) whether the youngsters’ experience of interaction with youth workers reflects these methodic principles, 3) whether and how methodical principles are longitudinally associated with these prevention-focused outcomes and 4) what other individual contextual conditions (such as important life events) and other preconditions might influence the positive development of youngsters in their transition to adulthood. Examples of these other preconditions include: accessible, welcoming and safe social and cultural settings, flexibility in programming (Davies, 2011; Mercier et al., 2000), a diverse team of professional youth workers, in contrast to youth work facilitated by volunteers (Dunne et al., 2014), and locations with sufficiently attractive facilities (Rumping et al., 2017).

**Limitations of the study**

There are specific limitations that must be considered when interpreting our findings. Although there are no guidelines for the number of studies that need to be included in a QSR (Vermeire, 2009), we are cognizant of the fact that the number of studies included in this synthesis is limited. This is due to the fact that there is a relative dearth of empirical practice-based research providing evidence of how youth work contributes towards the positive development of young people (McGregor, 2015). Notwithstanding the relatively limited number of studies included, combining the findings from the six available studies produces added conceptual value that transcends the results of the individual studies that were conducted within six different European contexts.

Secondly, it should be noted that two of the studies analysed for the purposes of this study were constructed within a framework of ‘appreciative inquiry’ (Ord et al., 2021), which is a strength-based form of analysis that aims to learn from ‘what works’ in youth work. By adopting this framework, these studies do not consider the potentially limited or negative impacts of youth work, not to mention failing to account for the voices of those who do not access youth work. In accordance with the original authors, we also believe that ‘more research needs to be done through a more critical lens, interrogating the processes and outcomes of youth work more broadly’ (Ord et al., 2021, p. 6).
Third, although the fact that the first two authors were part of the research group that conducted four of the studies included in this paper proved to be beneficial for translating the main themes, we are nevertheless aware that it may also have introduced biases. To mitigate against this, the translations of these four studies were checked by two other fellow researchers, which increased the reliability of the synthesis process.

Implications for practice

This framework can assist youth workers to explain their methodical process they employ to support the personal development and social participation of youngsters. The framework codifies their ‘tacit knowledge’ into methodic principles which offers them a common language that they can use to better explain their work to policy makers and fellow colleagues. It may also help to distinguish the youth work domain from other areas, such as youth care and education. In addition, this framework supports both practice and youth work education in assisting in the transference of knowledge about professional youth work to a new generation of youth workers. Finally, this conceptual framework should be of interest to policy makers, allowing them to better appraise the role of professional youth work in the realization of current youth policy, in which increasing attention is being paid to prevention and the strengthening of young people’s own capabilities and responsibilities.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Notes on contributors

**Jolanda Sonneveld** (MSc.) is a researcher in the research group Youth Spot–Youth Work and lecturer in the Master’s of Social Work and a minor in youth work at the University of Applied Sciences in Amsterdam. She is a Ph.D. student at the Academic Workplace Social Work at Tilburg University/Tranzo.

**Dr. Judith Metz** is professor of Social Work at Saxion University of Applied Sciences in Enschede, the Netherlands. From 2009 to 2020, she worked as professor of Youth Work in Urban Areas at the University of Applied Sciences in Amsterdam. Dr. Metz is also chair of the European Social Work Research Association (ESWRA).

**Professor René Schalk** is professor at Tranzo and the Department of Human Resource Studies, Tilburg School of Social and Behavioral Sciences, Tilburg University, the Netherlands. He is also extraordinary professor at the Faculty of Economic and Management Sciences of North-West University, South Africa.

**Professor Tine Van Regenmortel** is endowed professor of Social Work at Tranzo, Tilburg School of Social and Behavioral Sciences, Tilburg University. She is also head of the research group, Social and Economic Policy & Social Inclusion, at HIVA, KU Leuven, and professor at the Faculty of Social Sciences, KU Leuven.

References

Abdallah, S. (2017). Struggles for success. *Youth work rituals in Amsterdam and Beirut*. Amsterdam: University of Amsterdam, Doctoral dissertation.

Bakker, P. (2011). *Individuele begeleiding van jongeren. Uitgangspunten en handvatten voor de praktijk*. Tandem Welzijnsorganisatie.

Bartelink, C., & Verheijden, E. (2015). *Wat werkt bij het versterken van het sociale netwerk van gezinnen?* Netherlands Youth Institute.

Batsleer, J., & Davies, B. (2010). *What is Youth Work?* Learning Matters Ltd.

Bergin, C., Talley, S., & Hamer, L. (2003). Prosocial behaviours of young adolescents: A focus group study. *Journal of Adolescence, 26*(1), 13–32. https://doi.org/10.1016/S0140-1971(02)00112-4

Blom, B., & Morén, S. (2010). Explaining social work practice. The CAIMeR Theory. *Journal of Social Work, 10*(1), 98–119. https://doi.org/10.1177/1468017309350661

Brown, A. (1979). *Groupwork*. Heinmann Educational Books.
Catalano, R., Berglund, L., Ryan, J., Lonczak, H., & Hawkins, D. (2004). Positive youth development in the United States: Research findings on evaluations of positive youth development programs. The Annals of the American Academy of Political and Social Science, 591(1), 98–124. https://doi.org/10.1177/0002716203260102

Catalano, R., Hawkins, D., Berglund, L., Pollard, J., & Arthur, M. (2002). Prevention science and positive youth development: Competitive or cooperative frameworks? Journal of Adolescent Health, 31(6), 230–239. https://doi.org/10.1016/S1054-139X(02)00496-2

Cavanaugh, A. M., & Buehler, C. (2015). Adolescent loneliness and anxiety. The role of multiple sources of support. Journal of Social and Personal Relationships, 33(2), 149–170. http://doi.org/10.1177/0265407514567837

Cheung, J. C.-S. (2016). Researching Practice Wisdom in Social Work. Journal of Social Intervention: Theory and Practice, 25(3), 24–38. http://doi.org/10.18352/jsi.472

Chugh, R. (2015). Do Australian Universities encourage tacit knowledge transfer? In Proceedings of the 7th international joint conference on knowledge discovery, knowledge engineering and knowledge management - KDM, (IC3K 2015), 128–135, Lisbon, Portugal. https://doi.org/10.5220/0005585901280135

Cooper, S. (2018). Methodology of Transformative Evaluation. In J. Ord, M. Carletti, S. Cooper, C. Dansac, D. Morciano, L. Siurala, & M. Taru (Eds.), The Impact of Youth Work in Europe: A Study of Five European Countries (pp. 100–110). Juvenes Print.

Cooper, T. (2012). Models of youth work: A framework for positive sceptical reflection. Youth and Policy, 1(109), 98–117. https://www.youthandpolicy.org/wp-content/uploads/2017/06/cooper_models_of_youth_work.pdf

Davies, B. (2011). Youth work stories: In search of qualitative evidence on process and impact. In Defence of Youth Work campaign. Youth & Policy, 1(106), 23–42. https://www.youthandpolicy.org/wp-content/uploads/2017/06/youthandpolicy106-1.pdf

Dickson, K., Vigurs, C., & Newman, M. (2013). Youth work: A systematic map of the research literature. Department of Children and Youth Affairs.

Dixon-Woods, M., Cavers, D., Agarwal, S., Annandale, E., Arthur, A., Harvey, J., Hsu, R., Katbamna, S., Olsen, R., Smith, L., Riley, R., & Sutton, A. J. (2006). Conducting a critical interpretive synthesis of the literature on access to healthcare by vulnerable groups. BMC Medical Research Methodology, 6(35), 1–13. https://doi.org/10.1186/1471-2288-6-35

Doherty, L., & De St Croix, T. (2019, November 18). The everyday and the remarkable: Valuing and evaluating youth work. Youth & Policy. https://www.youthandpolicy.org/articles/valuing-and-evaluating-youth-work/

Dunne, A., Ulicna, D., Murphy, I., & Golubeva, M. (2014). Working with young people: The value of youth work in the European Union. IFC GHK.

Facé, W. (2016). Jongereninformatie- en -advieswerk. Antwerpen.

Fyfe, I., Biggs, H., Hunter, S., McAteer, J., & Milne, D. (2018). The Impact of Community-based Universal Youth Work in Scotland. A study commissioned by the Scottish Youth Work Research Steering Group. YouthLink Scotland.

Glaser, B. G., & Strauss, A. L. (1967). The Discovery of Grounded Theory: Strategies for Qualitative Research. Aldine Publishing Company.

Henderson, M., Scourfield, J., Cheung, S. Y., Sharland, E., & Sloan, L. (2016). The Effects of Social Service Contact on Teenagers in England. Research on Social Work Practice, 26(4), 386–398. https://doi.org/10.1177/1049731514557363

Hill, P. (2020). Open access youth work: A narrative review of impact. King’s College London.

Howell Major, M. C., & Savin-Baden, M. (2010). An introduction to qualitative research synthesis: Managing the information explosion in social science research. Routledge.

Hurley, L., & Treacy, D. (1993). Models of youth work: A sociological framework. Irish Youth Work Press.

Ince, D., Yperen, T. van, & Valkestijn, M. (2018). Top ten positive youth development. Protective factors in parenting and growing up. Netherlands Youth Institute.

Jeffs, T., & Smith, M. (2010). Youth Work Practice. Red Globe Press.

Koops, K., Metz, J., & Sonneveld, J. (2013). We zijn de brug naar zelf aan de slag gaan. Onderzoeksrapport Ambulant Jongerenwerk in de grote stad. Amsterdam University of Applied Sciences.

Koops, K., Metz, J., & Sonneveld, J. (2014). Want zij geloof in mij. Onderzoeksrapport Individuele Begeleiding in het Jongerenwerk. Amsterdam University of Applied Sciences.

Laflra, J., & en Nikken, P. (2014). Wat werkt bij het versterken van eigen kracht? Nederlands Jeugd Instituut.

McCave, E., & Rishel, C. (2011). Prevention as an explicit part of the social work profession: A systematic investigation. Advances in Social Work, 12(2), 226–240. https://doi.org/10.18060/1444

McGregor, C. (2015). Universal Youth Work. A critical review of the literature. University of Edinburgh.

Mercier, C., Piat, M., Peladeau, N., & Dagenais, C. (2000). An application of theory-driven evaluation to a drop-in youth center. Evaluation Review, 24(1), 73–91. https://doi.org/10.1177/0193841X0002400103

Metz, J. (2016). The development of a method substantiated by research for girls’ work. Journal of Social Intervention: Theory and Practice, 25(1), 47–70. http://doi.org/10.18352/jsi.431

Metz, J. (2017). The professionalism of youth work and the role of values. Social Work & Society, 15(2), 1–16. ISSN: 1613-8953

Metz, J. (2020). The significance of youth work for prevention. A state of affairs. Mens En Maatschappij, 95(2), 113–131. https://doi.org/10.5117/MEM2020.2.003.METZ
Metz, J., & Sonneveld, J. (2012). De inloop als ingang. In Onderzoeksrapport over de werking en de resultaten van de inloop als werkwijze in het grootstedelijk jongerenwerk. Amsterdam University of Applied Sciences.

Milburn, T., Forsyth, B., Stephen, S., & Woodhouse, H. (2000). Thinking on your feet. Outreach and detached youth work with vulnerable young people. Prince Trust.

Mundy-McPherson, S., Fouchê, C., & Elliot, K. (2012). If only “a rose by any other name would smell as sweet”: A systematic review on the impact of youth work for young people. Child & Youth Care Forum, 41(2), 213–228. https://doi.org/10.1007/s10566-011-9169-z

Noblitt, G. W., & Hare, R. D. (1988). Meta-Ethnography: Synthesizing Qualitative Studies. Sage Publications. Inc.

Ord, J. (2014). Aristotle’s Phronesis and Youth Work: Beyond instrumentality. Youth and Policy, 1(112), 56–73. SSN 0262-9798

Ord, J., Carletti, M., Cooper, S., Dansac, C., Morciano, D., Siurala, L., & Taru, M. (2018). The impact of youth work in Europe: A study of five European Countries. Juvenes Print.

Ord, J., Carletti, M., Morciano, D., Siurala, L., Dansac, C., Cooper, S., Fyfe, I., KÖTSI, K., SINISALO-JUHA, E., TARU, M., & Zentner, M. (2021). European youth work policy and young people's experience of open access youth work. Journal of Social Policy, 1–21 (2021). https://doi.org/10.1017/S0047279421000143

Pearlin, L. I., & Schooler, C. (1978). The structure of coping. Journal of Health and Social Behavior, 19(1), 2–21. https://doi.org/10.2307/2136319

Polanyi, M. (1966). The tacit dimension. Double Day and Company.

Ritchie, D., & Ord, J., & Ritchie & Ord. (2017). The experience of open access youth work: The voice of young people. Journal of Youth Studies, 20(3), 269–282. http://doi.org/10.1080/13676261.2016.1212162

Rossi, P. H., Lipsey, M. W., & Freeman, H. E. (2004). Evaluation. A systematic approach (7th ed). Sage Publications, Inc.

Rumping, S., Metz, J., Awad, S., Nijland, E., Manders, W., Todorovic, D., Sonneveld, J., & Schaap, R. (2017). Groepswerk als generieke methodiek van het grootstedelijk jongerenwerk. Amsterdam University of Applied Sciences.

Schaap, R., Todorovic, D., Awad, S., Manders, W., Sonneveld, J., & Metz, J. (2017). Onderzoek naar Informatie & Advies als specifieke methodiek van het grootstedelijk jongerenwerk. Amsterdam University of Applied Sciences.

Sonneveld, J., Rijnders, J., Metz, J., Schalk, R., & Van Regenmortel, T. (2020). The contribution of professional youth work to the development of socially vulnerable youngsters: A multiple case study. Children and Youth Services Review, 118 (2020), 105476. https://doi.org/10.1016/j.childyouth.2020.105476

Sprinkhuizen, A., & Scholte, M. (2017). Vorm geven aan methodisch handelen vanuit een brede basis. In M. Spierts, A. Sprinkhuizen, M. Scholte, M. Hoijtink, E. de Jonge, & L. Van Doorn (Eds.), De brede basis van het sociaal werk. Gronsvlaken, methoden en praktijken (pp. 99–122). Coutinho.

Vermeire, E. (2009). Synthese van kwalitatieve onderzoek. Kwalon, 14(2), 23–30. https://doi.org/10.5117/2009.014.002.007

Vermeire, E., Hearnshaw, H., Rätsep, A., Levasseur, G., Petek, D., Van Dam, H., Van Der Horst, F., Vinter-Repalust, N., Wens, J., Dale, J., & Van Royen, P. (2007). Obstacles to adherence in living with type-2 diabetes: An international qualitative study using meta-ethnography (eurostacle). Primary Care Diabetes, 1(1), 25–33. https://doi.org/10.1016/j.pcd.2006.07.002

Vettenburg, N. (1998). Juvenile delinquency and the cultural characteristics of the family. International Journal of Adolescent Medicine and Health, 10(3), 193–210. https://doi.org/10.1515/IJAMH.1998.10.3.193

Waid, J., & Uhrich, M. (2020). A scoping review of the theory and practice of positive youth development. The British Journal of Social Work, 50(1), 5–24. https://doi.org/10.1093/bjsw/bcy130

Williamson, H., & Coussé, F. (2019). Reflective Triilogue: Conclusions from the History Project – Twelve trilemmas for youth work. In H. Williamson & T. Basarab, (Eds.), The history of youth work in Europe Volume VII: Pan-European and transnational youth organisations & The overall lessons learned from the history project(pp 191-209). Council of Europe.

Zimmerman, M. A. (1995). Psychological empowerment: Issues and illustrations. American Journal of Community Psychology, 23(5), 581–599. https://doi.org/10.1007/BF02506983