

A conceptual framework for assessing interorganizational integration and interprofessional collaboration

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The need for collaboration in health and social welfare is well documented internationally. It is related to the improvement of services for the users, particularly target groups with multiple problems. However, there is still insufficient knowledge of the complex area of collaboration, and the interprofessional literature highlights the need to develop adequate research approaches for exploring collaboration between organizations, professionals and service users. This paper proposes a conceptual framework based on interorganizational and interprofessional research, with focus on the concepts of integration and collaboration. Furthermore, the paper suggests how two measurement instruments can be combined and adapted to the welfare context in order to explore collaboration between organizations, professionals and service users, thereby contributing to knowledge development and policy improvement. Issues concerning reliability, validity and design alternatives, as well as the importance of management, clinical implications and service user involvement in future research, are discussed.

Keywords: Assessment framework, health/social welfare, interorganizational integration, interprofessional collaboration

INTRODUCTION

The development of most welfare systems is characterized by an increasing differentiation of roles, tasks and responsibilities, which seems to be generated by three universal forces: specialization, decentralization and professionalization. Specialization has undoubtedly promoted the health and well-being of populations. Decentralization is commonly regarded as a successful condition to rationalize activities of service providers. Furthermore, the principle of professional organization of management is today deeply embedded in several welfare organizations. On the other hand, these three driving forces, individually and together, have also strongly

contributed to the fragmentation of welfare services both interorganizationally and interprofessionally (Ahgren, 2010).

There are several approaches to the handling of fragmentation, and their scope is quite different. Some aim to eliminate professional and departmental boundaries by developing interprofessional teams, while others are intended to integrate different community sectors (Ahgren, 2008). When professionals collaborate for better health and social welfare, they represent their professional competence as well as a particular service. Thus, it seems relevant to approach the phenomenon of collaboration considering at the same time interprofessional and interorganizational aspects. However, a great deal of the existing knowledge base on collaboration concentrates on these two aspects separately, and few attempts have been made to combine them (Willumsen, 2008).

The aim of this paper is to propose a quantitative research approach based on a conceptual framework, which simultaneously explores interorganizational integration and interprofessional collaboration. Furthermore, the paper suggests how two measurement instruments can be combined and adapted to the welfare context. Reflecting on and establishing a sound conceptual framework is essential for ensuring high validity and reliability estimates (Hair, Anderson, Tatham, & Black, 1998; Ødegård, Hagtvat, & Bjørkly, 2008).

COLLABORATION FOR WELFARE

The WHO Ottawa Charter of 1986 emphasizes the importance of intersectoral collaboration for the promotion of health and delivery of welfare services adapted to the needs of the citizens (World Health Organization, 1986). In line with this concluding comment, models of interorganizational and interprofessional collaboration have been launched all over the world. Multiprofessional networks and teams, as well as partnerships and alliances between

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Received 21 March 2011; revised 6 September 2011; accepted 25 November 2011

different welfare actors, are just some examples of this course of action (Davis & MacDonald, 1998; Schrijvers & Goodwin, 2010).

The work with service users, i.e. recipients of welfare services, with multiple needs can be organized in different degrees of cohesiveness; from loose cooperation, where information is collected and distributed, to systematic collaborative teamwork. The latter form could include professionals, service users (depending on age and maturity) and their network, which is a common form of collaboration when working with such target groups (Andersson et al., 2005; Reeves, Lewin, Espin, & Zwarenstein, 2010). Professionals are often responsible for integrating these services and involving users. At an organizational level, agreements about integrating services are rare, which means that there are seldom cohesive conditions in place to support collaboration (Willumsen, 2008). Accordingly, managers play an important role in facilitating professionals' collaborative endeavors internally, as well as linking other services and supporting external communication and integration (Axelsson & Axelsson, 2009; Hunter, 2004; Huxham & Vangen, 2005; Willumsen, 2006).

The present situation calls for holistic, interprofessional service provision, which may include individual-oriented actions in first line services, specialist services in institutions as well as health-promoting projects in the local community (Leathard, 2003).

The Norwegian context

The requirements for collaboration in the welfare services have been documented over the last 25 years in white papers as well as legal regulations (NOU 1986:4; St.m. 47/2008–2009, Health Care Services Act, 1982). Teamwork involving professionals and service users is a common collaborative arrangement in Norway. It is termed core group (Norwegian: *ansvarsgruppe*) and primarily aims at ensuring cooperation and participation over time, particularly in complex and serious cases (Godeseth, 2005; Willumsen & Skivenes, 2005). Furthermore, an individual plan (IP) for each service user, agreed on by the team, is often necessary in complex cases in order to ensure sustainable and coordinated services (Kjellevoid, 2005; Patients' Rights Act, 1999). A coordinator is appointed when employing an IP, i.e. a case manager who is responsible for the coordination of services to the service user in focus.

ASSESSMENT PERSPECTIVES

According to Donabedian (1966), the quality of services can be divided into the following aspects: structure, process and outcome. Moreover, Ahgren (2007) and Øvretveit (1998) argue that these three aspects of quality can, in turn, be understood as deriving from management, professionals and service users, which provides a structure for assessment as illustrated in Figure 1.

Structural quality includes managerial ability (Square A), the staff's range of competence and experience (Square D) and user empowerment (Square G). Process quality concerns

Assessment perspective	Input/structure	Process	Outcome
Management	A	B	C
Professional	D	E	F
Service users	G	H	I

Figure 1. Assessment perspectives of interorganizational and interprofessional collaboration.

how the work is carried out: work routines, communication between staff members (Squares B and E) and user involvement (Square H), while outcome quality refers to the effect of the work, such as an improved management system (Square C), professional results (Square F) and service users' quality of life and well-being (Square I). These perspectives are not only related to each other sequentially within each domain of actors; their outcomes also serve as inputs for other domains and thereby prerequisites for performance and the ultimate outcome (Square I).

One of the most important tasks of managing interorganizational performance is organizing between organizations, which, in turn, is an essential prerequisite for interprofessional collaboration. The overall aim of services for users can be expressed in terms of achieving optimal results in Square I. This requires professionals to make accurate assessments of the users' need for help, propose and implement adequate interventions in addition to good communication and effective collaboration with other stakeholders to maintain continuity of treatment. To achieve these qualities, appropriate conditions must be in place for the development of good professional quality. Management has thus an important role in ensuring that the best possible organizational conditions are in place for collaboration between professionals, for instance, interorganizational agreements on collaboration, the appointment of network managers and joint budgets for joint activities.

In this paper, the main concern is to suggest how researchers can investigate Square D: the prerequisites for collaboration, emanating from management outcomes, i.e. Squares C and E (professional processes), in particular the level of integration between the organizations involved and the perceptions of collaboration. A clearer understanding of what Squares D and E entail will hopefully provide opportunities to improve collaboration practices and arrangements and lead to positive consequences for the benefit of users (Square I). In line with this need of elaboration, a quantitative research approach is proposed, based on a conceptual framework including two instruments, Scale of Organizational Integration (SOI) (Aghren & Axelsson, 2005) and Perception of Interprofessional Collaboration Model Questionnaire (PINCOM-Q) (Ødegård, 2006), which are adapted to the welfare field and explore

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interorganizational and interprofessional collaboration and the relationship between these two phenomena.

CONCEPTUAL MODELS

Interorganizational integration¹

At an organizational level, the concept of integration is central for the understanding of collaboration (Ahgren & Axelsson, 2005; Leathard, 2003). According to Lawrence & Lorsch (1967), collaboration concerns balancing the somewhat antagonistic conditions of differentiation and integration. The authors define differentiation as “the difference in orientation and in the formality of structure” between bodies (p. 10). Integration refers to “the quality of the state of collaboration that exists among departments that is required to achieve unity of effort by the demands of the environment” (p. 11). Thus, integration implies joint effort by the units and professionals involved.

Different types of integration can be described along a continuum and are exemplified as follows (Ahgren & Axelsson, 2005). *Linking* between existing organizational units: the intention is that referrals reach the most appropriate recipient without delay. Moreover, communication between service providers is simplified to promote continuity of efforts. *Coordination in networks* is a more structured form of integration, but still mainly based on existing organizational units. The purpose is to coordinate the various services, to produce common information and to facilitate the transfer of service users between different units. *Full integration* means that resources from different organizational units are merged in a newly established organization. *Full segregation*, which implies no contact between service providers, could be added to this continuum. Furthermore, there is a form of integration between coordination of networks and full integration, where network coordinators are appointed, whose role is to improve contact between the organizations, even if these units remain organizationally independent. This form of integration can be called *cooperation* (see Figure 2).

The integration continuum does not say anything about the optimum form of integration between different providers. For some providers, such integration could be worth aiming at, while others may be content with lower degrees of integration. Following Lawrence and Lorsch (1967), the degree of integration should be related to the level of differentiation of services; a high degree of differentiation requires a high level of integration, and vice versa.

The continuum can be transformed into a measurement instrument SOI. This can be used for the analysis of integration both within and between organizations, that is, intra- and interorganizational integration, respectively. Moreover, the different forms of integration include vertical

integration between different hierarchical organizational levels and horizontal integration between organizations at the same hierarchical level (Ahgren & Axelsson, 2005).

Interprofessional collaboration

In addition to the degree of integration, to understand collaboration processes and how collaboration arrangements may be improved, it is necessary to explore how professionals perceive collaboration in health and social welfare. Raskin & Bridges (2002) pointed out that, in psychology, there are many theories about how people create “systems of meaning,” often referred to as personal constructs, mental maps or perceptions. Focusing on perceptions of collaboration makes it possible to explore differences in how professionals perceive collaboration as a phenomenon.

Ødegård (2006, 2008) presented a conceptual model (PINCOM), which suggests a total of 12 factors that professionals perceive as central aspects of collaboration (Figure 3).

The PINCOM model has been used to develop a measurement instrument (PINCOM-Q) to explore the extent to which professionals give meaning to collaboration by focusing on these different aspects (Ødegård, 2006; Ødegård & Strype, 2009). PINCOM-Q has been found to have relatively high reliability scores in previous studies (Ødegård, 2006).

A QUANTITATIVE ASSESSMENT APPROACH

A key aspect of any integration and/or collaboration arrangement is their dynamics, which are characteristic of joint work in the welfare services. The collaboration process influences the organization of the collaboration, i.e. teams, in terms of composition related to the type of professional competence and service required at various points of time. This, in turn, depends on the service users’ needs, as well as on the goal and content of the collaborative work. Thus, the collaboration process is characterized by circular rather than straightforward pathways due to incomplete understanding of the problems as well as uncertainty about the necessary actions, and this constitutes a great degree of unpredictability at various points of time. Consequently, it is reasonable to assume that this dynamic and complex process influences the professionals’ perceptions of collaboration. In addition, the need for interorganizational integration depends on the degree of service differentiation. A highly differentiated service calls for cohesive provision, i.e. a high level of organizational integration (Lawrence & Lorsch, 1967).

Design considerations

According to Donabedian (1966), there are many ways of designing studies taking perceptions of integration and

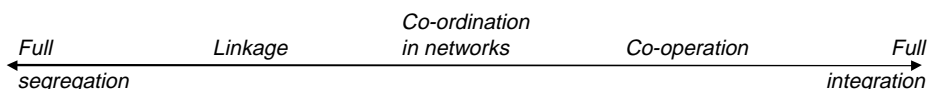


Figure 2. Continuum of integration (Ahgren & Axelsson, 2005).

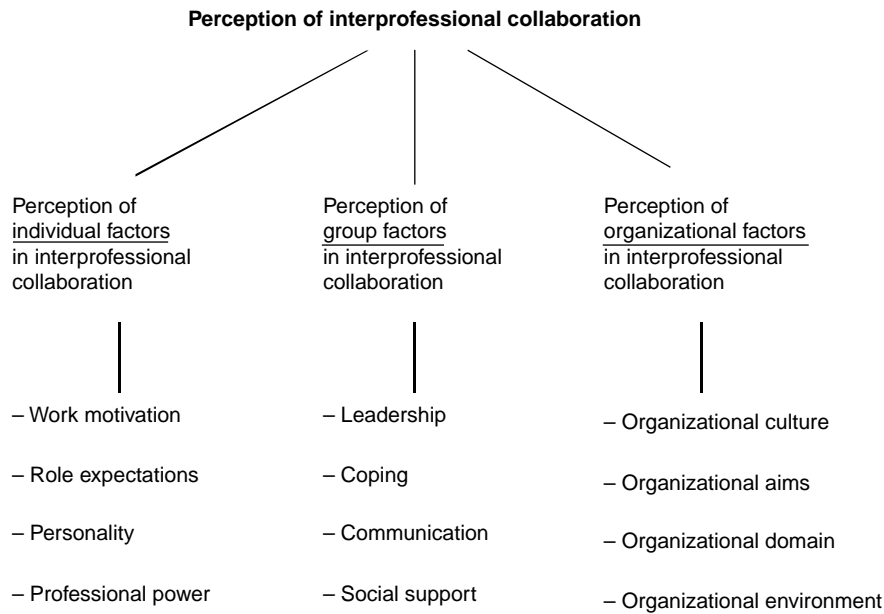


Figure 3. Perception of Interprofessional Collaboration Model (PINCOM).

collaboration processes into account. In this paper, however, the main focus is on the quantitative research approach. On the individual level, the use of questionnaires may be a sound way to tap perceptions of both integration and collaborative processes. However, this will only provide a general impression of professionals’ perceptions of the phenomena of integration and collaboration. It is likely that there is a great deal of variation between different integration and collaboration arrangements, e.g. work groups, rehabilitation, network and management teams, making it relevant to explore the unique team. Thus, a design for exploring perceptions of integration and collaboration arrangements is illustrated in Figure 4.

This research design has the potential of collecting rich descriptions of perceptions of both integration and collaboration among participants in a given study on (1) an individual level and (2) a group level – for example, after a group discussion. Using real ongoing interprofessional groups as informants, new and interesting information about the relationship between the level of integration and perceptions of collaboration may unfold. Square A (individual/collaboration) is measured by PINCOM-Q; Square B (individual/integration) by the integration scale; Square C (group/collaboration) common perceptions (after discussion) are measured by a sample of PINCOM-Q items and Square D common perceptions (after discussion) by a sample of items from the integration scale. A range of data analyses, which include descriptive to multivariate analyses such as ANOVA, factor analyses (FA) and structural equation modeling (SEM) (Hair et al., 1998), may be used in research based on this design. This design also provides rich possibilities for estimating statistical power (Hair et al., 1998). There are several strategies for calculating statistical power, most of which require the effect size estimate, for

example, using mean score differences between groups. Another possibility is to calculate power estimates before conducting the study – for example, to determine the number of informants needed, as this would decrease the risk of producing Type II errors.

Validity and reliability issues

To explore organizational integration, interprofessional collaboration and the relationship between them, it is important to deal with conceptual issues before designing and adapting suitable instruments to obtain sound construct validity. Hence, conceptual clarification and elaboration of both organizational integration and interprofessional collaboration are needed. This is important for ensuring adequate validity of the constructs used in the conceptual models on which the instruments are based. For example, degrees of integration within the welfare services should concern integration within a team or an alternative collaborative arrangement, as these are main arenas for collaboration. Similarly, the original PINCOM concepts may not be relevant in a given welfare context. Thus, a suggestion might be to discuss this with professionals and other relevant stakeholders in the given welfare context, if conceptual models that constitute the basis for methods are to be changed. Instruments need to be adapted to the actual welfare context to ensure high reliability and validity estimates. The main reason is that validity is not “a property of the test or the assessment as such, but rather of the meaning of the test scores” (Messick, 1995, p. 741).

According to Ahgren & Axelsson (2005), a ratio scale (SOI) with equidistant steps starting with full segregation (position = 0) and ending with full integration (position = 100) can be linked to the integration continuum illustrated in Figure 2. The data measuring integration in SOI

CONCEPTS N (INDIVIDUALS/ GROUPS)	COLLABORATION	INTEGRATION
INDIVIDUALS N = ?	A	B
GROUPS N = ?	C	D

Figure 4. Illustration of research design for measurement of collaboration and integration on an individual and a group level.

scale were originally based on homogeneous patient groups. Each case in welfare services is quite unique due to the multidimensional aspects of problems and service user needs. Thus, an assessment of interorganizational collaboration within this context needs to originate from individual cases, which, in turn, could be derived from the degree of integration at a certain point of time, within a team assigned to each service user or a similar collaborative arrangement. Thus, the following state of activities can be identified as linked to the different integration levels:

- *Full segregation*: No existing contacts between service providers.
- *Linking*: Exchange of information and possible referrals based on existing procedures and guidelines.
- *Coordination in network*: Team without a service user IP.
- *Cooperation*: Team with a service user IP, which implies the appointment of a coordinator.
- *Full integration*: Collaborative arrangements, included as an activity/service in an IP, cofinanced by authorities represented in the team, e.g. special projects including individual treatment, housing facilities, etc.

When it comes to the PINCOM, it seems relevant to include constructs such as motivation, role expectancy, professional power, group leadership, coping, communication, social support, organizational domain and organizational culture for investigating collaboration in health and social welfare. However, the construct “personality style” may be too vague, as it has failed to yield adequate reliability scores in other studies (Ødegård, 2006). “Personality style” could therefore be replaced by the construct of “relational competence.” A new construct “organizational leadership” should probably be included in the PINCOM because leadership often makes a significant contribution in the success or failure of developing collaborative arrangements (e.g. Hunter, 2004; Huxham & Vangen, 2005; Willumsen, 2006). The next step is to collect data using the proposed instruments, with the intention

of verifying whether or not they are accurate. New data make it possible to calculate the measures of validity and reliability of the instruments and compare them to previous studies (Ødegård, 2006) as well as allowing comparison between the results of previous studies (Ahgren & Axelsson, 2005; Ødegård & Strype, 2009).

Operationalizing the conceptual model(s)

When applying the conceptual assessment framework in future research, it will be particularly important that the items developed are sound, i.e. in order to operationalize the concepts. This could mean that the wording of some items will need to be changed or adapted (Messick, 1995) to ensure construct relevance and validity. Messick (1995) claimed that there are two major threats to construct validity: (1) “*construct under-representation*, the assessment is too narrow and fails to include important dimensions or facets of the construct” (p. 742), and (2) “*construct-irrelevant variance*, the assessment is too broad, containing excess reliable variance associated with other distinct constructs as well as method variance such as response sets or guessing propensities that affect responses in a manner irrelevant to the interpreted construct” (p. 742).

Internal validity refers to the certainty of inferring that a causal relationship exists at the operationalized level (Lund, 2005; Shadish, Cook, & Campbell, 2002). For example, according to Axelsson & Axelson (2006), teams tend to undergo several phases as they develop. Hence, it is possible that the developmental phase (understood as the independent variable) of the team could predict perceptions of collaboration and/or integration (dependent variables).

Equally important in any quantitative research approach is to ensure high reliability estimates (Nunnally, 1967). Research in the welfare field focusing, for example, on teams, ought to be derived from both individual and multiprofessional judgments, whether or not the integration ranks refer to actual or optimal conditions. Therefore, the adaptation of the SOI to the welfare context possibly implies that the ratio scale must be replaced by a numeric Likert scale (Bowling, 2002) adapted to the five tentative levels of integration. In this case, the actual level of integration within each team can be assessed as a decision based on consensus among all group members, or calculated as a weighted mean of each group member’s perception of integration (design considerations). Besides measuring participants’ perceptions of the level of integration, the team members can be requested to state what they consider the optimum level of integration, using the same numeric Likert scale.

DISCUSSION

Management and leadership

The importance of managerial support for the creation of interorganizational integration as well as interprofessional collaboration is frequently commented on in research, see, for example, Leichsenring (2004), Huxham & Vangen (2005) and Ahgren (2007). The key role of management is to create favorable integrative and collaborative conditions,

organizational arrangements integrating services and linkages between professionals. Such prerequisites facilitate interactions between organizations and professionals, although at the same time there could still be considerable obstacles to be overcome, including “territorial” conflicts between the different organizations and professionals involved. The latter tend to defend their territories when they believe that they are threatened (Glendinning, 2003).

If the advantages of interaction between organizations and professionals are lacking or concealed, such approaches should be terminated to avoid antagonistic relationships, which, in turn, could lead to decreased productivity as well as poor quality (Huxham & Vangen, 2005). Not only is the structural managerial support crucial, team leadership is also of vast importance. To reduce territorial behavior, altruistic leadership could be a prerequisite for developing sustainable interprofessional collaboration (Axelsson & Axelsson, 2009). Research developments within the field could help managers to deal with integration and collaboration issues.

Practical considerations

The adaptation of the two instruments presented in this paper may contribute new insights into how interorganizational integration and interprofessional collaboration can enhance clinical arrangements, i.e. between social workers in child welfare, psychologists in the mental health services, as well as nurses and general practitioners in primary health care centers. With reference to the assessment perspectives (see Figure 1) and the investigation of Squares D and E, one can make tentative assumptions by combining results from both instruments, i.e. regarding professionals’ statements about levels of integration combined with their perceptions of collaboration. For example, what is the relationship between a high level of integration and professionals’ perceptions of collaboration on individual, group and organizational levels? High integration levels may possibly generate stronger social support and group efficacy than low integration ones. The adaptation of the instruments to health and social welfare may also provide new insights into how background factors, such as (1) type of profession, (2) gender, (3) age and (4) length of professional experience, influence the need for integration and perceptions of collaboration.

Future research

Service user involvement. The involvement of service users is highly desirable in the development of new research areas, as they are the ones who experience the impact of structures and processes on outcomes (Sosial- og Helsedirektoratet, 2006). User involvement could take the form of users as (1) fellow researchers and (2) respondents.

There are only a few examples of models where users’ experiences form the basis for evaluation of integration between services and professions. Ahgren, Axelsson, & Axelsson (2009) developed a tentative model that could be adapted to a welfare context. The authors concluded that in order to shed light on service integration, one needs to

capture user perceptions about the accessibility of relevant information and the design of the service. Interprofessional collaboration concerns trust between users and professionals, as well as their motivation. Common overarching agreement and professional responsiveness are important issues for understanding interprofessional collaboration. However, outcomes can be assessed by user satisfaction and the success of the treatment. In line with Donabedian (1966), it seems important to involve service users in the research process, as their perspectives may have consequences on outcomes. This could be achieved by including service users in a research reference group.

Mixed methods. Research on organizational integration and interprofessional collaboration is probably best explored by mixed methods designs (Reeves et al., 2010). The advantage of using such designs is that researchers may strengthen both the validity of the study and the reliability of the scores. For example, Dellinger & Leech (2007) introduced a system for researchers to guide research developments (validation framework – VF); “It is the researchers’ desires to produce meaningful data and inferences through negotiation that makes it natural, practical, and useful, or pragmatic, to use mixed methods approaches” (p. 329).

CONCLUDING COMMENTS

The aim of this paper was to propose a quantitative research approach based on a conceptual framework mainly focusing on the organization of collaboration (i.e. Square D in Figure 1) and professional processes (i.e. Square E). A clearer understanding of what Squares D and E entail will hopefully provide opportunities to improve collaboration arrangements and practices and have positive consequences for users (i.e. Square I). It has also been suggested that interorganizational integration and interprofessional collaboration processes should be analyzed in a wider context (Donabedian, 1966).

Despite experiences of joint working in general and within the health and social welfare context in particular, there are still major challenges in the provision of collaborative services (Ahgren, 2008, 2010; Schrijvers & Goodwin, 2010), not least in developing knowledge about what is needed to establish and maintain high-quality services. As mentioned above, there have been calls for progress in these areas, especially in the relationship between interorganizational arrangements, interprofessional collaboration and outcomes. Accordingly, the proposed conceptual framework includes a quantitative research approach for simultaneously assessing interorganizational and interprofessional conditions that facilitate researchers to investigate collaboration in a meaningful way. The suggested adaptations, especially the improvement of construct validity, are considered potentially useful for exploring the integration of services and the perceptions of collaboration. Although this paper was written within the context of health and social welfare, clinical applicability may extend to any organization attempting to promote integration and collaboration.

Declaration of interest

The authors report no conflict of interest. The authors alone are responsible for the content and writing of the paper.

NOTES

¹The term “interorganizational integration” covers collaboration between organizations/systems, such as sectors, agencies/services, departments and units, whereas the term “interprofessional collaboration” refers to collaboration between professionals, such as interprofessional, rehabilitation, network and management teams. Interprofessional collaboration often includes service users, which if so is specified. “Joint work(ing)” is a collective term used for collaboration unless otherwise specified.

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