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The Interprofessional Socialization and Valuing Scale: A tool for evaluating the shift toward collaborative care approaches in health care settings

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Abstract. *Background*: There is a need for tools by which to evaluate the beliefs, behaviors, and attitudes that underlie interprofessional socialization and collaborative practice in health care settings.
Method: This paper introduces the Interprofessional Socialization and Valuing Scale (ISVS), a 24-item self-report measure based on concepts in the interprofessional literature concerning shifts in beliefs, behaviors, and attitudes that underlie interprofessional socialization. The ISVS was designed to measure the degree to which transformative learning takes place, as evidenced by changed assumptions and worldviews, enhanced knowledge and skills concerning interprofessional collaborative teamwork, and shifts in values and identities. The scales of the ISVS were determined using principal components analysis.
Results: The principal components analysis revealed three scales accounting for approximately 49% of the variance in responses: (a) Self-Perceived Ability to Work with Others, (b) Value in Working with Others, and (c) Comfort in Working with Others. These empirically derived scales showed good fit with the conceptual basis of the measure.
Conclusion: The ISVS provides insight into the abilities, values, and beliefs underlying socio-cultural aspects of collaborative and authentic interprofessional care in the workplace, and can be used to evaluate the impact of interprofessional education efforts, in house team training, and workshops.

Keywords: Interprofessional, collaboration, socialization, instrument validation, socio-cultural

1. Introduction

The social context of health care is shifting. The public is demanding more accountability for public expenditures on health services, while at the same time seeking timely access to high quality services. Growing shortages of health providers, who are attempting to negotiate higher and higher salaries, are also forcing a rethinking of the ways in which health services are provided [4,9]. In response to these tensions, the provincial and federal governments in Canada [15–17] are espousing a move toward interprofessional care [24, 42].

Interprofessional client-centred collaborative practice is envisioned to provide more effective and efficient care, along with improving client engagement and participation in their care processes [12,28,43]. As a result of this growing interest in interprofessional

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health care, workplace environments are in transition. Although teams of health care professionals have practiced collaboratively for a few decades, interprofessional education and practice are receiving increased attention. Health professional educational institutions and health care organizations are attempting to help professionals adopt and change practice, and to alter environments to support the enactment of teamwork.

To practice interprofessionally, team members need to develop identities that involve participation in collaborative teams [3,23]. Interprofessional collaborative teamwork demands that health providers extend their professional socialization to embrace dual professional and interprofessional identities [11,38]. In an interdisciplinary or interprofessional model of service, the team reaches consensus about intervention goals [10, 30] and the client is more likely to be involved as part of the team. In a multidisciplinary model, professionals from different disciplines function independently, in parallel to one another [10].

In response to the significant attention being given to interprofessionalism, there are calls in the mental health [21,31], pediatric rehabilitation [20], and interprofessional care literatures [1,25] for methods to evaluate the dimensions, processes, and outcomes associated with the delivery of health care within a climate and culture of collaborative practice. However, evaluating the social and cultural dimensions of collaboration in workplaces, and the subsequent impact of collaborative practice on health care outcomes, is neither easy nor well understood.

Traditionally, evaluations of workplace dimensions in health care settings have focused on the physical demands that influence work performance (such as lifting and transferring patients, pushing, pulling, standing, and walking) and on environmental demands (such as cold, vibration, lighting, noise, and safety and security in the delivery of care). The socio-cultural dimensions of health care, which underlie and influence the demands and expectations of collaborative care practices, are somewhat tacit. A conceptual and explicit understanding of these demands is required.

Evaluation of the socio-cultural aspects of the workplace requires tools and methods that can capture social interactions and relationships, service providers' perspectives and values, and the underlying care ethic of the workplace. We need to be able to evaluate the degree to which practitioners have adopted interprofessional beliefs, behaviors, and attitudes that reflect socialization towards interprofessional collaborative practice. A tool measuring these aspects of socialization will allow us to evaluate the success of university education efforts, such as workshops, and to assess interprofessional collaborative teamwork in the workplace.

The first three authors of this article were members of a committee whose mandate was to evaluate the utility of a series of interprofessional educational workshops for university students in health care professions. They recognized the need for a measure by which to assess aspects of the interprofessional socialization process, based on a coherent conceptual framework of dimensions underlying the enactment of collaborative care in the health care context. To address this need, they drew upon research evidence on collaborative practice from several health disciplines (nursing, occupational therapy, physical therapy, medicine), as well as their experiential knowledge, and developed a conceptual framework upon which to create an instrument assessing the process of interprofessional socialization and valuing of interprofessional collaborative practice (the Interprofessional Socialization and Valuing Scale).

This paper provides background information about the conceptual development of this measure, and findings from initial validation work examining the measure's constructs. Possibilities for using this tool to examine the transformation of professionals in implementing collaborative health care are discussed, along with insights into use of this tool in advancing the measurement of the most important dimensions of collaborative care.

2. Literature review

2.1. Evaluating the development of interprofessional identities in collaborative care

To date, the health care literature has explored the benefits of teamwork per se, rather than the development of interprofessional identities and the valuing of collaborative care that result from the socialization process. The focus has been on measuring the benefits of collaborative teamwork for clients and organizational productivity [25]. Studies consistently report that teamwork in health care is associated with improved quality of care [6,39]. Little attention has been paid to processes underlying the enactment of collaborative care, and there are few appropriate tools by which to evaluate aspects of the development of interprofessional identities.

D'Amour, Ferrada-Videla, Rodriguez and Beaulieu [7] conducted a literature review on collabora-

tive care and identified common collaboration concepts across health settings, which included sharing, partnership, power, interdependence, and process. Shaw et al. [33] investigated the processes of enacting a transdisciplinary model of rehabilitation care, and reported that interprofessional team members purposefully engaged in strategies to support collaboration in the midst of practice. These strategies included nurturing consensus in team meetings, supporting professional synergy, and facilitating a learning culture. These findings are consistent with a framework developed by King [19], which suggests that team members within learning-oriented work environments can achieve and improve their knowledge and expertise through learning from each other. Furthermore, a framework developed by Orchard et al. [28] has stressed the importance of addressing the socialization of professionals in moving towards collaborative practice.

What is lacking in the interprofessional literature are processes and tools for evaluating interprofessional collaborative care approaches within the socio-cultural context in which collaborative care transpires. Tools for evaluating the socialization of professionals are needed for two reasons. First, many practicing professionals have not received training or support relevant to working in an emerging culture requiring interprofessional collaboration. Consequently, further investigation and tools are needed to evaluate strategies that are most effective in promoting this transition. Second, tools are needed to evaluate the effectiveness of interprofessional education programs for newly graduating professionals, to determine the utility of these programs in helping them develop dual professional and interprofessional identities, and subsequently become more collaborative in caring for clients. Thus, there are existing challenges for organizations desiring to improve quality of care through collaboration, for new professionals who will ultimately enact and shape the socio-cultural context of collaborative care, and for educators wanting to understand professionals' needs for transitional supports that will help them practice collaboratively.

2.2. Existing tools

In response to these needs, a number of tools have emerged by which to examine interprofessional approaches to care. In 2005, Mickan and Rodger [26] developed a Health Teams Model that helps teams learn more about their team effectiveness and coherence, through use of reflection on practice. This tool focuses on team processes, rather than on the contributions of individual professionals or the role of their identities in shaping health care outcomes.

Other tools, such as the Readiness for Interprofessional Learning Scale (RIPLS) [32], aim to evaluate the readiness of professionals for change, based on concepts underlying collaboration, but do not address socialization per se. Tempkin-Greener et al.'s [37] Interprofessional Team Performance Scale (ITPS) helps team members assess their team performance and address how they work with one another, but does not address the socialization changes that occur as a result of team functioning. Baggs et al.'s [2] Collaboration and Satisfaction About Care Decisions measure (CSACD) evaluates collaboration among health professionals, but again does not address dimensions underlying socialization to provide collaborative care. None of these measures provide an understanding of why team members may choose to collaborate with each other or not.

2.3. Rationale for the development of the Interprofessional Socialization and Valuing Scale

To understand the processes that shape the socio-cultural context of collaborative care, evaluative tools are needed that consider social structures that support the shift to interprofessionalism and the social interactions of professionals. Hence, dimensions or concepts underlying the transactions of professionals in groups [13] must be elaborated. To understand the group, Hall [14] suggests that the culture of each profession needs to be considered in promoting opportunities for change, in addition to the role played by systemic factors such as access to education. Given the complexity of collaborative care processes, the involvement of professionals with varying experiences and expertise, and traditional socialization towards expert models of care, it is important to consider how professionals perceive themselves, as well as others, in the process of delivering collaborative care.

We therefore developed the Interprofessional Socialization and Valuing Scale (ISVS) to capture the beliefs, behaviors, and attitudes of professionals that influence and are influenced by their transactions in enacting collaborative care approaches. This new measure provides conceptual understanding of fundamental aspects of interprofessional socialization and a way to measure one of the complex dimensions of interprofessional care – the transactions of professionals within a socio-cultural context.

In the following sections, the conceptual basis of the ISVS items is discussed, followed by results of a pre-

liminary principal components analysis. The intent is to clarify the nature of collaborative care and provide a measure for evaluating the dimensions of collaborative care in health care contexts.

3. The conceptual basis of the ISVS

The conceptual basis of the ISVS reflects a humanistic and constructivist perspective or philosophy, one that views interprofessional socialization as comprised of experiences that challenge assumptions and foster reflection on the self. Thus, values, beliefs, and awareness of one's behavior and interactions with others are important foundational aspects of socialization. Beliefs, behaviors, and attitudes are considered to be key concepts in the literature on interprofessional socialization and collaborative client-centred practice [18,34].

The ISVS is, therefore, based on a framework or perspective that views beliefs and understandings, behaviors, and attitudes as underlying the transactions of professionals enacting teamwork and collaborative care. The ISVS was designed to measure the degree to which transformative learning (i.e., socialization) has taken place, as evidenced by individuals' assumptions and worldviews, knowledge and skills, and shifting values and identities. The conceptual framework's validity was examined through principal components analysis, and scales were subsequently refined through that process.

3.1. Beliefs, behaviors, and attitudes underlying socialization towards interprofessional collaborative practice

Our focus was on socialization with respect to interprofessional collaboration. According to Hall [14], 'culture' includes the values, beliefs, attitudes, customs, and behaviors that distinguish one group of people from another. The socialization or enculturation process towards interprofessional collaborative care should, therefore, include changes in (a) awareness/knowledge (of self, of one's role), (b) behavior, and (c) attitudes. Supporting this perspective, the literature on interprofessional education has been concerned with the influence of interprofessional experiences on beliefs, practices, and attitudes [34]. Furthermore, according to Herbert [18], collaborative patient-centred practice involves knowledge (i.e., beliefs), skills (i.e., behaviors), and attitudes. Acquiring a collaborative mindset is considered to require and entail important changes in professional practice, attitudes, and values [7]. Accordingly, the conceptual domains of the ISVS were: (a) Awareness and Understandings (Beliefs), (b) Comfort and Ability (Behaviors), and (c) Appreciation and Valuing (Attitudes).

Specific items in the ISVS were developed to measure beliefs, behaviors, and attitudes. These items were gleaned from the interprofessional socialization and teamwork literature. Items in the beliefs category (Awareness and Understandings) capture changed identity with respect to being a team member [29]; beliefs about benefits of implementing interprofessional practice [20]; better understanding of collaborative roles and responsibilities [14]; and beliefs about the importance of a collaborative team approach [7]. Items in the behaviors category (Comfort and Ability) capture comfort in articulating one's role and clarifying misconceptions about roles [41]; comfort and confidence in roles and responsibilities; and comfort in displaying particular behaviors and collaborative skills [27]. Items in the attitudes category (Appreciation and Valuing) capture awareness of preconceived ideas, and appreciation of the value of a collaborative team approach [5,33].

4. Methods

4.1. Development of the ISVS

A construct approach to test development was followed, in which items are generated to represent the domain of interest [22,40]. In the present case, the domains were the *a priori* conceptual domains, namely beliefs, behaviors, and attitudes associated with socialization towards an interprofessional identity and valuing of collaborative care.

The first three authors of this article, who have experience in interprofessional education, collaborative team practice, and client-/family-centred care, developed a comprehensive set of items to reflect the three fundamental concepts of interprofessional socialization and valuing of team collaboration (i.e., beliefs, behaviors, and attitudes). Thirty-four items were developed, based on the literature and their expertise, to measure: (a) awareness and understanding (beliefs), (b) comfort and ability (behaviors), and (c) appreciation and valuing (attitudes). To ensure clarity of wording and content validity, items were reviewed by the Evaluation Working Group for the Creating Interprofessional Collaborative Teams for Comprehensive Mental Health Services Project (CIPHER-MH project).

4.2. Instrument format

The ISVS is a self-report measure designed to assess respondents' interprofessional beliefs, attitudes, and behaviors, and to be relevant to university students receiving interprofessional education, as well as practicing professionals.

The ISVS asks respondents to rate the extent to which a belief, behavior, or attitude is present, using a 7-point Likert scale with all points labelled (1 = not at all; 7 = to a very great extent). A "not applicable" response option is also included. The stem for all items is: "At this point in time, based on my participation in interprofessional education activities and/or clinical practice. . . ." Average item scores are calculated for each scale, to allow comparisons between scales containing different numbers of items. Higher scores on all scales indicate a greater presence of the attribute or dimension that is being measured (i.e., stronger beliefs or attitudes, or higher expression of behaviors reflecting interprofessional socialization and valuing).

The ISVS can be used to assess individuals' beliefs, behaviors, and attitudes concerning interprofessional practice at any time in university training or clinical practice. As well, the ISVS can be administered in a pre-post manner to assess changes in socialization due to educational or workplace interventions.

4.3. Data collection

The ISVS was developed as part of the CIPHER-MH project's evaluation of university students' learning. This project was developed to explore interprofessional client-centred education, within a mental health context, and consisted of a series of nine educational workshops focusing on sequential elements leading to interprofessional collaborative practice. The preliminary version of the ISVS was, therefore, administered to a convenience sample of 124 health professional students at the end of the final workshop of the CIPHER-MH project.

5. Results

5.1. Respondent characteristics

Of the 124 respondents, 102 (82.3%) were female and 19 (15.3%) were male (3 individuals did not specify their gender). Table 1 presents the health and/or social service practice areas of these respondents. The largest number were in Occupational Therapy (30.6%), followed by Nursing (21.0%). There were restricted numbers in Clinical Kinesiology, Dietetics, and Speech Language Pathology (only one individual in each of these groups). There were 65 students (52.4%), 5 practicing professionals (4.0%), 51 students with program practice experience (41.1%), and 1 individual who indicated s/he was both a clinician and student (0.8%) (2 individuals did not supply information about their work or school status). Thus, although the majority of the respondents were students (52.4%), 57 respondents had practice experience (46.0%).

Table 1
Health and/or social service practice areas of respondents

Health/social service practice area	Frequency	Percent
Clinical Kinesiology	1	0.8
Dietetics	1	0.8
Medicine	7	5.6
Nursing (RN)	26	21.0
Nursing (RPN)	2	1.6
Occupational Therapy	38	30.6
Physical Therapy	11	8.9
Pre-Professional Program	8	6.5
Psychology	3	2.4
Social Work	3	2.4
Speech Language Pathology	1	0.8
Other	9	7.3
Missing	14	11.3
Total	124	100

5.2. Initial inspection of items

The performance of individual items was explored to determine the items most appropriate to include in the scale [8]. We examined item-scale correlations, item variances, and item means to ensure that items correlated highly with the scale as a whole, and had relatively high variances and means close to the centre of the scale range [8]. No items were excluded on this basis.

5.3. Principal components analysis

The purpose of this stage was to construct scales based on items loading together in the analysis. A principal components analysis with a varimax rotation was performed using data from all 124 respondents. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy score was 0.85, indicating that it was appropriate to perform a principal components analysis on these data. A minimum score of 0.70 indicates that data are sufficiently robust to support factor analysis, and scores over 0.80 are considered very good [36].

Table 2
Factor loadings of items on the ISVS scales

Item	ISVS scales		
	Factor 1 Self-perceived ability to work with others	Factor 2 Value in working with others	Factor 3 Comfort in working with others
I feel comfortable in accepting responsibility delegated to me within a team	**0.74**	0.07	0.24
I feel able to act as a fully collaborative member of the team	**0.71**	0.33	0.24
I have gained a better understanding of my own approach to care within an interprofessional team	**0.69**	0.37	0.38
I feel comfortable in being accountable for responsibilities I have taken on	**0.68**	0.24	0.22
I am comfortable engaging in shared decision making with clients	**0.67**	0.22	0.26
I am able to listen to other members of the team	**0.67**	0.00	0.01
I have gained a better understanding of the client's involvement in decision making around their care	**0.63**	0.39	0.29
I feel comfortable clarifying misconceptions with other members of the team about the role of someone in my profession	**0.57**	0.36	0.30
I more highly value open and honest communication with team members	**0.56**	0.06	0.26
I have gained more realistic expectations of other professionals on a team	0.07	**0.73**	0.33
I have gained an enhanced awareness of the roles of other professionals on a team	0.08	**0.69**	0.21
I see myself as preferring to work on an interprofessional team	0.10	**0.64**	0.10
I have gained an appreciation for the benefits in interprofessional team work	0.49	**0.62**	0.07
I have gained greater appreciation of the importance of a team approach	0.46	**0.61**	0.07
I feel comfortable initiating discussions about sharing responsibility for client care	0.38	**0.51**	0.33
I have gained an appreciation for the importance of having the client and family as members of a team	0.36	**0.51**	0.14
I believe that interprofessional practice will give me the desire to remain in my profession	0.08	**0.47**	0.21
I believe that interprofessional practice is not a waste of time	0.06	**0.36**	0.20
I feel comfortable debating issues in a team	0.07	0.06	**0.84**
I am comfortable being the leader in a team situation	0.19	0.09	**0.82**
I feel confident in taking on different roles in a team (i.e., leader, participant)	0.29	0.06	**0.72**
I am able to share and exchange ideas in a team discussion	0.22	0.37	**0.62**
I feel comfortable speaking out within the team when others are not keeping the best interest of the client in mind	0.36	0.17	**0.58**
I believe that interprofessional practice is difficult to implement	0.13	0.26	**0.42**

Inspection of eigenvalues, along with interpretation of factor loadings, revealed three factors, and so a principal components analysis was conducted forcing a three-factor solution. This analysis accounted for 48.7% of the variance. The eigenvalues and percent of variance accounted for by each factor were as follows: factor 1 (11.8 and 34.7%), factor 2 (2.7 and 8.1%), and factor 3 (2.0 and 6.0%). Inspection of the factor loadings led to dropping 10 items, resulting in a 24-item measure. The criteria for retaining items were (a) a factor loading of at least 0.30, and (b) if an item loaded on two factors, then a minimum difference of 0.10 was needed to retain the item. The resulting scales were labeled: Self-Perceived Ability to Work with Others (Self-perception of Abilities and Skills) (9 items), Value in Working with Others (Enhanced Appreciation and Understanding of Interprofessional Practice) (9 items), and Comfort in Working with Others (Comfort in Interprofessional Team Interaction) (6 items). Table 2 presents the factor loadings of the items.

Table 3 presents the internal consistency reliabilities, mean item scores, and standard deviations of each scale. Internal consistency assesses how well items contribute to the measurement of a single construct, and is reported using Cronbach's alpha. The coefficient alphas ranged from 0.79 to 0.89 for the three scales, indicating moderate to excellent reliability [35,36]. The coefficient alpha for the scale as a whole (24 items) was 0.90. The mean item scores ranged from 4.90 (for Comfort in Working with Others) to 5.80 (Self-Perceived Ability to Work with Others), indicating that greater comfort with team interaction occurred on average to a fairly great extent, whereas self-perceived ability to work with others occurred to a great extent as a consequence of participation in the workshops. The standard deviations of the scales were high (5.68 to 6.98), indicating that the ISVS captured diversity in responses, as desired.

5.4. Correlations among the ISVS scales

As shown in Table 4, the zero-order Pearson correlation coefficients among the ISVS scales ranged from

Table 3
Internal consistencies, mean item scores, and standard deviations of the ISVS scales

ISVS scales	Internal consistency (Cronbach's alpha coefficients)	Mean item score	Standard deviation
Self-Perceived Ability to Work with Others (9 items)	0.89 $n = 114$	5.80	6.98
Value in Working with Others (9 items)	0.82 $n = 109$	5.59	6.37
Comfort in Working with Others (6 items)	0.79 $n = 121$	4.90	5.68

Table 4
Correlations among the ISVS scales

Scale	Value in working with others	Comfort in working with others
Self-Perceived Ability to Work with Others	0.61	0.55
Value in Working with Others		0.34

0.34 to 0.61. These correlations indicate that the scales capture different aspects of interprofessional socialization. The lowest correlation was between Value in Working with Others and Comfort in Working with Others (0.34), which indicates the difficulty of working collaboratively with others, despite positive attitudes toward interprofessional practice.

6. Discussion

The Interprofessional Socialization and Valuing Scale demonstrates a strong factor structure, accounting for approximately 49% of the variance in responses, and moderate to excellent internal consistency, indicating that items within the scales are not overly redundant and not measuring different constructs. However, further testing is needed with various samples to confirm these values. Three items had relatively low factor loadings compared to other items (these factor loadings were above our cutoff of 0.30 but less than 0.50). Further work may indicate that these items should be omitted from the ISVS.

Examination of the mean scale scores in this preliminary sample indicated that the interprofessional education workshops had stronger effects on self-perceived ability to work with others, and relatively weaker effects on comfort in working with others. This suggests that developing a sense of comfort in working with others may be the most challenging aspect of interprofessional education and practice. More work is needed to determine whether educational interventions have a greater effect on some dimensions of the ISVS than others.

6.1. Conceptual framework of the ISVS

The conceptual framework of the ISVS was supported by the principal components analysis. The empirically derived scales showed good fit with the *a priori* constructed scales. In the original scale structure, items were generated to reflect Awareness and Understandings (Beliefs), Comfort and Ability (Behaviors), and Appreciation and Valuing (Attitudes). The empirically-derived scale structure grouped outcomes into Self-Perceived Ability to Work with Others (Self-perception of Abilities and Skills), Comfort in Working with Others (Comfort in Interprofessional Team Interaction), and Value in Working with Others (Enhanced Appreciation and Understanding of Interprofessional Practice). There was an excellent match between Appreciation and Valuing and the empirically derived scale titled Value in Working with Others. The conceptual distinction between beliefs and behaviors did not hold up; rather, the items grouped into those reflecting beliefs and behaviors concerning the self (Self-Perceived Ability to Work with Others) and those reflecting beliefs and behaviors concerning working with others (Comfort in Working with Others).

6.2. Study limitations and directions for future research

The present sample was comprised largely of female occupational therapy and nursing students who had knowledge and experience related to interprofessional practice (46.0% of respondents indicated that they had program practice experience). It is likely that there would be greater diversity in the responses if the

sample contained students from a wider variety of disciplines and a larger percentage of practicing health professionals (only 4% were practicing professionals). Hence, one of the study limitations is that the results cannot be applied to clinicians because they were not adequately represented in the sample. Students who have just completed a workshop on interprofessional practice may have different perspectives than experienced clinicians involved with interdisciplinary teams. Future research using a sample of clinicians is an important next step in order to verify the structure of the ISVS.

6.3. Further uses of the ISVS in promoting the shift to interprofessional collaboration

This study conceptualized and examined new constructs important for evaluating and understanding an important and complex dimension of the socio-cultural context of teamwork – the transactions of professionals. As reflected by the scales of the ISVS, professional transactions are considered to be influenced by each professional's perceived ability, comfort level, and values regarding working with others.

Understanding professional views about teamwork may open doors and opportunities to improve teamwork. We propose that the ISVS might be useful in helping teams who have neither worked together nor had the benefit of interprofessional education, to evaluate their ability, comfort, and valuing of working with others. Educational and socialization efforts could then be tailored to support a shift towards enacting effective collaborative care, depending on areas of relative strength and need, as revealed by the ISVS. The ISVS might also be used to help teams reflect on ways to overcome discomfort and to help team members learn to work together. In addition, teams or educators may consider using the ISVS to measure progress and/or outcomes of educational or workshop training efforts in improving interprofessional collaboration.

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