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Reflective capacity in nurses in specialist education: Swedish translation and psychometric evaluation of the Reflective Capacity Scale of the Reflective Practice Questionnaire

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Abstract

Aim: This study aimed to test the validity and reliability of the Swedish version of the Reflective Capacity Scale of the Reflective Practice Questionnaire in a nursing context.

Design: Non-experimental and cross-sectional.

Methods: The instrument was translated from English to Swedish using a translation and back-translation procedure. Data for the validity and reliability analysis were collected from Registered Nurses in specialist education (n = 156) at two Swedish universities.

Results: The Swedish version of the Reflective Capacity Scale of the Reflective Practice Questionnaire is a valid and reliable instrument that assesses the reflective capacity of healthcare practitioners. Our findings suggest a unidimensional structure of the instrument, excellent internal consistency and good reliability.

Conclusion: The Swedish version of the Reflective Capacity Scale of the Reflective Practice Questionnaire has a degree of reliability and validity that is satisfactory, indicating that the instrument can be used as an assessment of reflective capacity in nurses.

KEYWORDS

nurses, nursing education, psychometric evaluation, reflective capacity, reflective practice

1 | INTRODUCTION

In the context of health sciences education, reflective capacity refers to "the ability, desire, and tendency of students to engage in reflective thought during their academic studies and clinical practices" (Rogers et al., 2019, p. 1). In nursing and nursing education, reflective practice is regarded as the integration of theory

and practice, a requisite for personal and professional development, and a strategy for fostering person-centred approaches to care (Goulet et al., 2016). The theory of reflective practice in nursing is composed by a constellation of perspectives including a critique of technical rationality, the notion of an artistry of practice, constructivist assumptions, an emphasis on tacit knowledge and a call for ways of knowing beyond propositional knowledge

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(Kinsella, 2010). Reflection holds a vertical dimension spanning from descriptive surface levels to deeper levels of analysis and synthesis, but also an iterative dimension in which reflection is understood as a process involving experience, understanding and action (Mann et al., 2009). As professional practice is not the straightforward application of theory in a linear process, it requires professionals to adapt to situations that might be uncertain, unique and conflicting (Schön, 1983, 1987). Reflective practice involves not only reflection-in-action, that is challenging one's initial understanding of a situation, constructing a new understanding and testing it (Schön, 1983), but also reflection-on-action, that is learning from experience and developing ability and willingness for reflection-in-action (Ghaye & Lillyman, 2010).

Arguably, reflective capacity has to be learned and encouraged, as focused reflection is not a spontaneous activity but one that requires active effort and energy (Gelter, 2003). While it can be argued that reflection cannot be reduced to a tool for learning (Ekebergh, 2007), research suggests that reflective thinking can be promoted with positive effects on learning and practice (Goulet et al., 2016; Mann et al., 2009). Reflective practice groups, for example, have been developed and evaluated in the nursing practice context suggesting that they might promote self-awareness, clinical insight and quality of care (Dawber, 2013; Dawber & O'Brien, 2014) and facilitate stress management and team building (Dawber, 2013; O'Neill et al., 2019). Also, a review of the literature reported that reflective writing can foster clinical decision-making skills, reflection-on-action and professional self-development in undergraduate nursing education (Bjerkvik & Hilli, 2019).

1.1 | Background

The nature of reflective practice makes it hard to quantify (Mann et al., 2009), and few measures claim to actually assess reflective practice (Priddis & Rogers, 2018). Given the significance of reflective practice for nursing and nursing education (Goulet et al., 2016), it is important to develop valid and reliable means for assessing reflective capacity, that is nurses ability, desire and tendency to engage in reflective thought (cf. Rogers et al., 2019). Such measures might enable the further study of the relevance and impact of reflective capacity on nurses learning and practice and allow for evaluation of interventions targeting reflective capacity in nurses.

The Reflective Capacity Scale is a sub-scale of the Reflective Practice Questionnaire (RPQ). The RPQ has been applied to medical education and found to be a reliable measure of reflective capacity and its related characteristics in medical students (Rogers et al., 2019). When applying the RPQ to mental health professionals and a sample of the general population, Priddis and Rogers (2018) found that the questionnaire contained internally consistent items. Therefore, the authors suggested that it might be used both in research and in supervision as a tool for evaluation and learning. The RPQ was developed for use in various professional and _NursingOpen

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TABLE 1Sub-scales and sub-components of the ReflectivePractice Questionnaire (RPQ) (Priddis & Rogers, 2018; Rogerset al., 2019)

Sub-scales	Sub-components
Reflective capacity (RC)	Reflective-in-action (RiA)
	Reflective-on-action (RoA)
	Reflective with others (RO)
	Self-appraisal (SA)
Desire for improvement (Dfl)	
Confidence – General (CG)	
Confidence – Communication (CC)	
Uncertainty (Unc)	
Stress interacting with clients (SiC)	
Job satisfaction (JS)	

organizational contexts (Priddis & Rogers, 2018). While not a part of the RPQ, Priddis and Rogers (2018) also reported a six-item Appraisal of Supervision (AS) scale measuring satisfaction with reflective supervision. The RPQ (Priddis & Rogers, 2018) is a 40-item instrument containing ten sub-components intended to cover concepts relevant to reflective practice (Table 1).

Four of the sub-components assess different aspects of reflective capacity, that is reflection-in-action (RiA), reflection-on-action (RoA), benefiting from reflecting with others (RO) and active self-appraisal (SA) (Priddis & Rogers, 2018; Rogers et al., 2019). Together, these sub-components constitute the Reflective Capacity Sub-scale of the Reflective Practice Questionnaire (RCS-RPQ). The full RPQ has a broad scope and seek to assess not only reflective capacity per se. A desire for continual improvement of practice is assessed in one sub-scale (desire for improvement, Dfl) as it is believed to build reflective capacity. Three of the sub-scales (confidence - general [CG], confidence - communication [CC] and job satisfaction [JS]) assess potential benefits from reflective supervision, including increased confidence and JS. Potential negative outcomes associated with reflective supervision, uncertainty and stress are assessed in two sub-scales (uncertainty [Unc] and stress interacting with clients [SiC]). Priddis and Rogers (2018) suggest that RPQ sub-scales may be used selectively depending on practical restrictions and purposes.

So far, the full RPQ has been evaluated in the context of medical education (Rogers et al., 2019) and has been used to assess reflective capacity in that context (Horst et al., 2019; Schwartz et al., 2020). As interventions supporting reflection and the development of reflective capacity are established and implemented in nursing education and practice, there is a need for valid and reliable measures that can be used in both research and practice. The RCS-RPQ has the potential to be applied to various contexts, but has not yet been evaluated in nursing, nor has it been translated and evaluated in non-English speaking contexts.

1.2 | Aim

This study aimed to test the validity and reliability of the Swedish version of the Reflective Capacity Scale of the Reflective Practice Questionnaire (RCS-RPQ) in a nursing context.

2 | METHODS

2.1 | Design

The design of this study was non-experimental and cross-sectional, and psychometric evaluation was done within the realm of classical test theory (c.f. Nunnally & Bernstein, 1994).

2.2 | The instrument

The RCS-RPQ is a 16-item instrument providing a self-reported measure of reflective capacity. It is identical with the reflective capacity sub-scale of the RPQ as described by Rogers et al. (2019) and consists of the Reflective-in-action (RiA), Reflective-on-action (RoA), Reflective with others (RO) and Self-Appraisal (SA) sub-components of the RPQ, as described by Priddis and Rogers (2018). The wording of the items can be seen in Table 3.

2.2.1 | Translation procedure

The translation procedure was conducted systematically and stepwise in accordance with the recommendations of Maneesriwongul and Dixon (2004). First, three of the authors independently translated the original English version of the instrument (Priddis & Rogers, 2018) into Swedish. After comparing and discussing the three translation sets, these were synthesized to form a fourth set. The latter version was then sent to a blinded bilingual professional translator for back-translation into English. After comparing the original instrument with the back-translation, minor alterations were made to the Swedish translation in keeping with the original meaning of each item. The instrument was then checked for semantic appropriateness among monolingual subjects.

2.3 | Sample

The selection of study participants was consecutive. Inclusion criteria were Registered Nurses enrolled in advanced level specialist education at two universities in Northern Sweden at the time of data collection. In Sweden, advanced level specialist education for Registered Nurses (a 3-year education on bachelor level, 180 credits) is provided by the universities for higher education. The length of the education differs depending on type of specialization, and the most common is a 1-year education (two semesters, 60 credits) with a master degree (specialization in anaesthetic nursing, intensive care nursing, operating room nursing, pre-hospital nursing, psychiatric and mental health nursing, paediatric nursing, oncological nursing, elderly care nursing). Further there are two longer specializations; primary health care is conducted during two and a half semesters (75 credits), and midwifery is one and a half year (three semesters, 90 credits).

The minimum sample size for conducting a PCA was estimated based on the recommendations of Mundfrom et al. (2005), which advocates a minimum of 18–60 observations for "excellent" agreement between sample and population solutions when a single factor is found. The total of observations in our sample was 156, and the ratio of observations to variables was 9.75:1.

2.4 | Procedure

An electronic survey was sent by email to all students enrolled in advanced level specialist education at two universities in Northern Sweden during March-April 2019 (n = 306). Two subsequent reminders containing links to the electronic survey were sent, and a total of 156 students participated, resulting in a response rate of 50.98%. The survey contained two parts. The first part consisted of questions about the demographic profile of the participants such as age, gender, work experience, and specialist education. The second part contained the instrument for measuring reflective capacity.

2.5 | Analysis

The analysis of reliability and validity were guided by the framework provided by Streiner and Kottner (2014). The characteristics of the sample were analysed descriptively, and mean scores and standard deviations (*SD*) were calculated. Reliability was evaluated by analysing the Cronbach alpha coefficient and inter-item correlations. According to Nunnally and Bernstein (1994), the Cronbach alpha coefficient measures the internal consistency of a set of items and marks the average of all split-half reliabilities. Measuring inter-item correlations is a way of analysing internal consistency reliability by examining the extent to which scores on one item correlate to scores on the other items. The inter-item correlations provide an assessment of item redundancy and the extent to which items on a scale are measuring the same content and provide an assessment of the appropriateness and consistency of individual items.

Validity was assessed by calculating the corrected item-total correlation statistics and by dimension reduction. According to Nunnally and Bernstein (1994), the item-total correlation denotes the consistency of an item with the scale in total and represents the correlation between an individual item and the total score without that item.

To examine the dimensionality of the RCS-RPQ, the approach used in the original validation (cf. Rogers et al., 2019) was replicated, and a principal component analysis (PCA) was performed. The PCA

TABLE 2 Characteristics of the study sample

	Respondents (n = 156)	Population $(n = 306)$
Gender n (%)		
Male	19 (12.2)	44 (14.4)
Female	136 (87.2)	262 (85.6)
Other	1 (0.06)	
Age		
Mean (SD)	33.34 (7.2)	34.38 (7.58)
Min-max	24-56	22-58

reduces a number of variables into one or more underlying components and was applied to compute factor loadings as well as to detect latent structures and establish patterns of correlation among items. The PCA was performed with the use of varimax as rotation method and eigenvalue >1. However, no rotation was applied since a single factor solution was obtained. In the PCA, the factor loadings were calculated using the squared multiple correlations as estimates of the communality.

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The Kaiser–Meyer–Olkin Measure of Sampling Adequacy (KMO) and Bartlett's test of Sphericity were applied to determine the usefulness of a principal component analysis.

 TABLE 3
 Completion rate, mean score, SD, item-total correlation and factor loadings for each item in the RCS

Item		Sub- component	N	Mean score	SD	Item-total correlation	Factor loadings ^a
1	When reflecting with others about my work I become aware of things I had not previously considered.	RO	156	4.35	1.08	0.43	0.48
5	When reflecting with others about my work I develop new perspectives.	RO	156	4.60	0.98	0.52	0.57
12	I find that reflecting with others about my work helps me to work out problems I might be having.	RO	156	4.76	1.02	0.61	0.67
16	I gain new insights when reflecting with others about my work.	RO	156	4.77	1.00	0.66	0.71
4	During interactions with clients I recognize when my pre-existing beliefs are influencing the interaction.	RiA	156	3.97	1.06	0.54	0.59
7	During interactions with clients I consider how my personal thoughts and feelings are influencing the interaction.	RiA	156	3.81	1.17	0.63	0.69
11	During interactions with clients I recognize when my client's pre-existing beliefs are influencing the interaction.	RiA	156	3.79	1.09	0.43	0.49
14	During interactions with clients I consider how their personal thoughts and feelings are influencing the interaction.	RiA	156	3.95	1.06	0.67	0.72
2	After interacting with clients, I spend time thinking about what was said and done.	RoA	156	4.17	1.09	0.68	0.74
8	After interacting with clients, I wonder about the client's experience of the interaction.	RoA	156	4.14	1.16	0.68	0.74
10	After interacting with clients, I wonder about my own experience of the interaction.	RoA	156	3.58	1.13	0.60	0.66
13	After interacting with clients, I think about how things went during the interaction.	RoA	156	4.23	1.09	0.71	0.77
6	I think about my weaknesses for working with clients.	SA	156	4.42	1.11	0.63	0.68
9	I think about how I might improve my ability to work with clients.	SA	156	4.58	1.09	0.71	0.77
3	I think about my strengths for working with clients.	SA	156	4.22	1.06	0.59	0.65
15	I critically evaluate the strategies and techniques I use in my work with clients.	SA	156	3.81	1.04	0.60	0.66

^aSingle-factor principal component analysis.

2.6 | Ethics

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The study adhered to ethical principles of informed consent and confidentiality. The instrument was translated and evaluated as part of a research study approved by the Regional Ethics Committee in Umeå (dnr. 2017/284-31, 2018/267-32).

3 | RESULTS

The characteristics of the study participants (n = 156) are presented in Table 2.

3.1 | Sub-components

3.1.1 | Reflective with others (RO)

RO had the highest split-half reliability, with a Cronbach alpha of 0.832. The Cronbach alpha was slightly improved to 0.852 by deletion of item 1 ("when reflecting with others about my work, I become aware of things I had not previously considered"). Inter-item correlations ranged between 0.322–0.758 (mean = 0.558) and all corrected item-total correlations were positive and ranged between 0.519–0.764. The mean score of the RO component was 18.484 (SD = 3.341). The item's mean was 4.621, ranging from 4.353–4.769, with a mean item variance of 0.038.

3.1.2 | Reflective-in-action (RiA)

For RiA, the Cronbach alpha was 0.737 and was not improved by deleting any item. Inter-item correlations ranged between 0.342–0.539 (mean = 0.413), and all corrected item-total correlations were positive and ranged between 0.495–0.595. The mean score of the RiA component was 15.52 (SD = 3.29). The item's mean was 3.879, ranging from 3.794–3.968 with a mean item variance of 0.008.

3.1.3 | Reflective-on-action (RoA)

For RoA, the Cronbach alpha was 0.824 and was not improved by deleting any item. Inter-item correlations ranged between 0.440–0.688 (mean = 0.540), and all corrected item-total correlations were positive and ranged between 0.572–0.767. The mean score of the RoA component was 16.109 (SD = 3.615). The item's mean was 4.029, ranging from 3.577–4.231 with a mean item variance of 0.092.

3.1.4 | Self-appraisal (SA)

For SA, the Cronbach alpha was 0.784 and was not improved by deleting any item. Inter-item correlations ranged between 0.372–0.579 (mean = 0.475), and all corrected item-total correlations were positive and ranged between 0.520–0.648. The mean score of the component SA was 17.03 (SD = 3.348). The item's mean was 4.456, ranging from 3.814–4.577 with a mean item variance of 0.109.

3.2 | Scale total

For the RCS-RPQ in total, the Cronbach alpha was 0.915 and was not improved by deleting any item. Inter-item correlations ranged between 0.116–0.761 (mean = 0.403), and all corrected item-total correlations were positive and ranged between 0.427–0.712. The mean total score was 67.12 (SD = 11.460). The item's mean was 4.195, ranging from 3.581–4.774 with a mean item variance of 0.132.

3.3 | Factor analysis

The KMO was 0.9, indicating that the proportion of variance in the variables is caused by an underlying factor. Bartlett's test of sphericity was significant (<0.01), indicating that the variables were related and thus suitable for exploratory factor analysis. Based on these findings, we concluded that an exploratory factor analysis was useful.

The principal component analysis (Table 3) showed one single component, and all factor loadings were >0.3. The single component explained 44.65% of the total variance. The factor loadings median was 0.68 (range 0.48–0.77), and factor Eigenvalue was 7.14.

4 | DISCUSSION

In this study, we describe the psychometric properties of the Swedish version of the RCS-RPQ. The RCS-RPQ is a questionnaire that assesses the reflective capacity of healthcare practitioners. The reliability and validity of the original scale have been previously described (Priddis & Rogers, 2018). The results of this study represent the first psychometric evaluation of the Swedish version of RCS-RPQ and include assessments of reliability and validity.

4.1 | Reliability

Reliability of the scale was measured by calculating inter-item correlations and Cronbach's alpha values. According to Nunnally and Bernstein (1994), a Cronbach alpha value above >0.70 is considered acceptable, >0.80 good and >0.90 excellent. Following the proposed alpha levels as described by Nunnally and Bernstein (1994), the Cronbach alpha values for the RiA and SA sub-components were acceptable (>0.70) while for RO and RoA they were good (>0.80). In addition, the Cronbach alpha for the RCS-RPQ as a total was excellent (>0.90). This indicates that the instrument is reliable. The alpha levels are also in line with the levels proposed by Streiner and

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Norman (1995), who suggested that the approximate range of optimal alphas is between 0.70–0.90. According to Streiner and Norman (1995), Cronbach's alpha levels within this range indicate that items are strongly related without being redundant and are thus representative of a unidimensional structure.

The inter-item correlations within sub-components were between 0.322-0.735, indicating moderate correlations and consistency with the construct measured on the scale. According to Nunnally and Bernstein (1994), items should correlate moderately with each other, as values <0.30 indicate that the item is not consistent with the construct under study and values >0.70 indicate that items measure more or less the same aspect of the construct. Only two items had a correlation above the recommended values (Spearmans Rho 0.735) indicating some redundancy: the two items were within the sub-component RO (item 3 "I find that reflecting with others about my work helps me to work out problems I might be having" and item 4 "I gain new insights when reflecting with others about my work"). The correlation is somewhat expected due to the closeness of the construct that these two items explore. For the RCS-RPQ total, the inter-item correlations were lower (mean = 0.403), which is also expected since the sub-components measure different aspects of the construct under study.

4.2 | Validity

The corrected item-total correlation indicates construct validity and denotes the consistency of an item with the scale in total. According to Nunnally and Bernstein (1994), item-total correlations >0.30 are considered satisfactory. All corrected item-total correlations in our data were positive and >0.30.

The PCA was applied to explore if the number of variables could be reduced to one or more underlying components. The PCA revealed only one component, similar to the findings of the original instrument (cf. Rogers et al., 2019). According to Nunnally and Bernstein (1994), rotation is applied when the dimension reduction reveals more than one component. The PCA was therefore left unrotated. According to Field (2013), factor loadings <0.3 should be excluded and the factors retained should have at least three items with a loading >0.4. We found that all factor loadings were >0.3 and all items loaded in the component with correlations >0.4. Our findings suggest a unidimensional structure of the instrument, indicating that the instrument is a valid measure of reflective capacity. This aligns with the findings of Rogers et al. (2019) and reinforces an understanding of reflective practice.

4.3 | Limitations

This is one of several studies of reflective capacity in a group of healthcare professionals. Our findings are similar to those obtained in other psychometric evaluations of the sub- components comprising the instrument, but since this is the first evaluation of the instrument in a Swedish context, generalizations of the results and interpretations should be applied with caution.

Another possible limitation is social desirability bias, as respondents might have been reluctant to evaluate or report deficits in reflective capacity. It is also possible that people with low reflective capacity are unaware of possible deficits in this capacity due to a reduced ability of self-reflection. Ultimately, this could lead to incorrect reports of elevated values.

5 | CONCLUSION

The Swedish version of the RCS-RPQ is a valid and reliable instrument that assesses the reflective capacity of healthcare practitioners. Our findings suggest a unidimensional structure of the instrument, as both the principal component analysis and the reliability analyses found that items are strongly related without being redundant, and thus representative of a unidimensional structure. Items are consistent with the scale in total, indicating that the instrument is a valid measure of reflective capacity, and the RCS-RPQ demonstrates excellent internal consistency.

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CONFLICT OF INTERESTS

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

SiG, SeG and ÅE: Translation procedure. SiG: Data collection and statistical analysis. SiG and SeG: Manuscript drafting. All authors were responsible for the study's original conception and design. All authors approved the final version to be published. All authors have discussed and revised the interpretations of data.

DATA AVAILABILITY STATEMENT

The data sets generated and analysed during the current study are available from the corresponding author on reasonable request.

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