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EFFECT IN SELF-REPORT  
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LIKERT RESPONSE FORMAT**

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## **EXPLICIT CONTINUUM SCALE FORMAT REDUCES THE CEILING EFFECT IN SELF-REPORT QUESTIONNAIRES COMPARING TO LIKERT RESPONSE FORMAT**

This study presents a methodology for developing a new questionnaire format called explicit continuum scenario scales, in the example of a client focus questionnaire. Elements of the Rasch-Guttman scenario scale methodology were used in its development. In three consequent studies, different aspects of the scale functioning were investigated. In Study 1, on the sample of 100 respondents, it was shown that the explicit continuum scale produces reliable results and helps avoid the ceiling effect shown in the Likert response format version of the client focus questionnaire. In Study 2, the scale was administered in a competition environment, in a sample of 735 people. Despite the positive shift of scores, the instrument shows excellent psychometric characteristics and still resists the ceiling effect. In Study 3, new items were included, and the scale was presented in an interactive format. In the sample of 65,000 university students, it demonstrated the robustness of its psychometrics characteristics including dimensionality. The results of the three studies show that the explicit continuum format has the advantage of the stable dimensionality similar to the expanded format and is promising for measurement in social sciences.

Keywords: Likert format, continuum, scenario scales, vignette, Rasch, test development

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## Literature review: the need for new formats of psychological scales

Self-report Likert-type scales dominate the field of measurement in social sciences (Jebb, Ng, Tay, 2020). Because some researchers insist on differentiating Likert scales and Likert response formats (Carifio, Perla, 2007), we will use the term ‘response format’, however, in some articles cited below, this distinction is not made. Because the format is very popular, the best practices of Likert scale development are well studied (Jebb, Ng, Tay, 2020), and some limitations are well known. These limitations include the instability of factor structure or over-sensitivity to factor differences, artificial dimensionality associated with positively and negatively worded items (e.g. Zhang, Tse, Savalei, al. 2019), and ceiling effect which might be the result of social desirability effects or the lack of option sensitivity.

To some extent, these limitations were overcome within the Likert format. For example, to avoid the artificial dimensionality, it is recommended to word all the Likert response format items in the same direction (either positively or negatively oriented) and avoid mixing positive and negative items in the same scale (Brown, Shulruf, 2023). Avoiding the neutral middle point of the answer option scale (such as “Neither agree nor disagree” or “Neutral”) helps the interpretation stability and adds to the scale stability (Brown, Shulruf, 2023). The ceiling effect can be reduced with the help of ‘positively packed’ answer options (Brown, 2004; Brown, Shulruf, 2023), such as “Strongly agree, Agree, Mostly agree, Slightly agree, Disagree, Strongly disagree” (four ‘Agree’ options vs two ‘Disagree’ options). These positively extended options help enlarge the variance at the positive end of the scale.

The second approach to overcome the Likert response format limitations is to use new item formats which are directly linked to the construct continuum. Methodologically, psychological constructs are viewed as continuums with high, medium and low levels of construct representation, and thus, visible indicators for each part of this continuum can be developed. This conceptualization of construct as continuum roots in the work by Thurstone (1932), later validated by researchers who recommended item writers “intentionally write items to assess low, intermediate, and high trait values” (Drasgow, Chernyshenko, Stark, 2010). The importance of incorporating latent continuum into measurement practice was emphasized by Tay and Jebb (2018) and the process of this incorporation was methodologically refined in a recent handbook of survey development (Tay, Jebb, 2023). As previous researchers noted, ‘the continuum was originally a primary focus of early psychological measurement, but the advent of the convenient Likert-type scales pushed it into the background’ (Jabb, Ng, Tay, 2020).

The search for new item formats that heavily rely on the use of the whole construct continuum (apart from Thurstonian scales) is ongoing. The so-called expanded format (Zhang, Savalei, 2016; Kam, 2020) relies on presenting fully worded items to choose from instead of Likert options. For example, for the scale of dispositional optimism, a Likert type item would look like: “I am optimistic about my future” with five Likert response options from “Strongly agree” to “Strongly disagree”. The expanded format item would look like a set of statements to choose from:

- I’m very optimistic about my future
- I’m optimistic about my future
- I’m neither optimistic nor pessimistic about my future
- I’m pessimistic about my future
- I’m very pessimistic about my future

(the example is taken from Kam, 2020).

As shown, the expanded format establishes an unambiguous interpretation of the continuum as ‘optimistic to neutral to pessimistic’. The resulting empirical scale produced a single-dimensional solution compared to the two-dimensional results from the Likert scale with positively and negatively worded items which suggest more stability of the expanded item format (Kam, 2020).

Another case of the item format that explicitly relies on the continuum is Rasch-Guttman Scenario scales (RGSS) (Ludlow, Baez-Cruz, Reynolds, 2020). RGS scales are vignettes developed according to a strict methodology, in which each stage adds to the transparency of the continuum representation. For example, one of the key stages is the development of so-called narratives, that is, detailed descriptions of high, medium and low ‘parts’ of the continuum according to the chosen ‘facets’ (construct components). Another stage is developing items according to the plan which includes the requirement to pre-define each item as belonging to the high, medium or low part on the described continuum. A typical item in RGSSs is a vignette which describes a person with high, medium or low construct representation followed by an instruction to compare one’s characteristics with the character of the vignette and Likert response format options (e.g. five options from “I am much more engaged than [the character name]” to “[The character name] is much more engaged than me”) (Ludlow Baez-Cruz, Reynolds, 2020).

A comparative research of RGS scales with traditional Likert type scales demonstrated that RGSSs tend to produce less social desirability effects (Ludlow, Matz-Costa, Johnson, Brown, Besen, James, 2014), produce slightly better measures of motivation to study mathematics in schoolchildren (Parmaksiz, Kanonire, 2022), and allow very reliable holistic measurement of constructs using as few as 6 items (Antipkina, Ludlow, 2020).

The limitations of the RGSSs include higher requirements of reading skills of the respondents to read the vignettes (instead of a short statement in a typical Likert format item). As all the construct components (facets) are packed in each scenario, separate scores for each facet do not exist. That means, the researchers cannot ‘take out’ the facets scores from the sum score of a RGS scale.

## **Goals of the research and hypothesis**

The research was initiated in order to check the applicability of the explicit continuum presentation in psychological scales using scenario-like description. We expected to see a good dimensionality stability as it was previously shown with the expanded format scales (Zhang, Savalei, 2016; Kam, 2020) and the stability of interpretation as it was shown in Rasch-Guttman scenario scales ((Ludlow, Baez-Cruz, Reynolds, 2020).

## **Instrument development**

We called the format described in this study the explicit continuum scenario scale (ECSS) to acknowledge that some elements of RGSS methodology (Ludlow, Baez-Cruz, Reynolds, 2020) were used. The ECSS format was piloted in three subsequent studies described below. All respondents in three studies filled in the informed consent forms. In the first study, a framework was chosen and an instrument of client focus was developed together with a Likert response format scale based on the same framework. In the second study, the ECS scale was used in the situation of high stakes assessment (professional competition of hospitality sector employees), which confirmed the scale stability and the absence of the ceiling effect. In the third study, new items were added to the scale. The scale was coded in an interactive format and piloted again to check the flexibility of

the formal for changes and adjustments. In all the studies, the scale demonstrated high stability of the results and its factor structure.

### ***Study 1 Explicit continuum scale of Client focus development and its comparison with Likert response format scales***

In this section, the process of the instrument development will be described, starting from the literature review on construct focus, to the instrument development, to the first piloting results.

#### *The review of client focus research*

Because the goal of this paper is to present the ECSS methodology, we will limit the review of the literature on client focus to the essential information.

The definition and operationalization of customer focus was first made by Sachse and Weitz in 1982. They viewed customer focus as the degree of expression of behavior aimed at helping customers make exactly those decisions about purchasing goods or services that will satisfy their needs. The classical SOCO scale (Selling focus - Customer focus) reflected the two polarities of the construct: the desire to sell versus the desire to satisfy the needs first (Saxe , Weitz, 1982). The SOCO scale was based on the following indicators of the construct:

- The desire to help clients choose what will satisfy their needs
- Helping clients to better understand and evaluate their needs
- Offering exactly the product that will help meet their needs
- Accurate and clear descriptions of the products
- Avoiding deception and manipulation when communicating with clients
- Avoiding pressure on clients.

The reliability of the initial SOCO scale was 0.83. The factor structure confirmed the presence of a single dimension, however, due to the different directions of the test halves, positive questions emerged as an additional factor, explaining about 20 percent of the variance. The distribution of the obtained scores had a strong left-sided asymmetry. It was shifted to the right (Saxe , Weitz, 1982). The SOCO scale was used in many subsequent studies. For example, with its use, it was shown that the customer focus was positively associated with tourists' satisfaction within tourism industry employees, while sales focus was negatively associated with it (Tsaur et al., 2018). The relationship between customer focus and customer satisfaction was found to be U-shaped, which suggests that there is a certain optimum of customer focus, above which sales performance decreases (Homburg, Muller, Klarmann, 2011). Customer focus was positively related to managerial performance (Moon, Hur, Hyun, 2019), and had a mediating effect on the relationship between the locus of control and performance (Chang, Huang, 2011). It was shown that customer focus greatly reduced the likelihood of interpersonal conflict with a client, but at the same time, weakly increased job satisfaction (Briggs, Jaramillo, Noboa, 2015). More effective salespeople are not those who have a high level of customer focus, but those whose customer focus is at the same level as most team members (Arndt, Karange, 2012). In 2019, the operationalization of the SOCO scale was expanded in relation to employees of private banks, and it was shown that the conceptualization of customer focus is flexible. The core of the construct may remain unchanged, but various additional aspects specific to a particular industry might be added to it (Hanzaee, Mirvaisi, 2011).

Singh and Koshy (2008; 2011; 2012) redefined the conceptualization proposed by Sachse and Weitz (1982). They pointed out the inconsistency of the sales focus vs customer focus continuum (Singh, Koshy, 2008) and argued that these are two separate constructs that can be expressed differently in the same person. Customer focus, in Singh and Koshy's concept, consists of three aspects (Singh, Koshy, 2011):

(1) Providing correct and relevant information about products, services, and company to help clients make a choice that will satisfy them as much as possible.

(2) Understanding customers' explicit and implicit needs (rather than focusing only on explicit needs in order to make a sale faster).

(3) Creating and maintaining long-term relationships with clients.

Initially, a pool of 30 items for all three components of the construct was piloted on a sample of 380 young insurance workers from India. The three-factor structure was confirmed. However, the subscales of understanding customer needs and creating long-term relationships were highly correlated. Comparing the CFA results for the two-component and three-component structures, the authors chose the three-component structure, although the two-component model was also consistent with the data (Singh, Koshy, 2011). We suppose that this factor instability might be, at least, partly, the result of the Likert format sensitivity to wording artifacts.

To develop the new ECSS instrument, we used the three-component framework by Singh and Koshy (2011) adding the fourth component – conflict management skills. We also viewed the customer focus as a holistic unidimensional constructs. Thus, the main hypothesis of this pilot study were that 1) ECSS format is less prone to the dimensionality instability that the Likert-format scales; 2) client focus can be viewed as a holistic unidimensional construct.

#### *ECS scale development*

The development process included the following steps:

- (1) Framework selection. We relied on the framework by Singh and Koshy (2011) described above. Seven indicators (two for each of three indicators and one for the conflict management indicator) were chosen:
  - asking about clients' needs (Revealing clients' needs)
  - identifying clients' needs (Revealing clients' needs)
  - creating long-term relationships with clients (Long-term relationships)
  - informing clients about products and services (Information)
  - managing conflicts with clients (Conflict management)
  - knowledge of the goods and services of the company (Information)
  - maintaining client databases (Long-term relationships).
- (2) Item development. For each of these indicators, we developed three stories, describing high, medium and low client-oriented employees. Developing the stories we relied on the Rasch-Guttman scenario scale methodology (Ludlow, Baez-Cruz, Chang, Reynolds, 2020). Thus, for each indicator we created a narrative, describing employee's behavior on the high, medium and low levels of continuum and defined sentence maps so that each story in an item was structured in the same way as the others. In figure 1, a generalized ECSS item structure is presented as an illustration of the format. The double-arrow line represents a continuum behind the indicator. Three frames contain stories of characters from the lower, middle and higher parts of the continuum. The heading above explicitly labels the indicator.

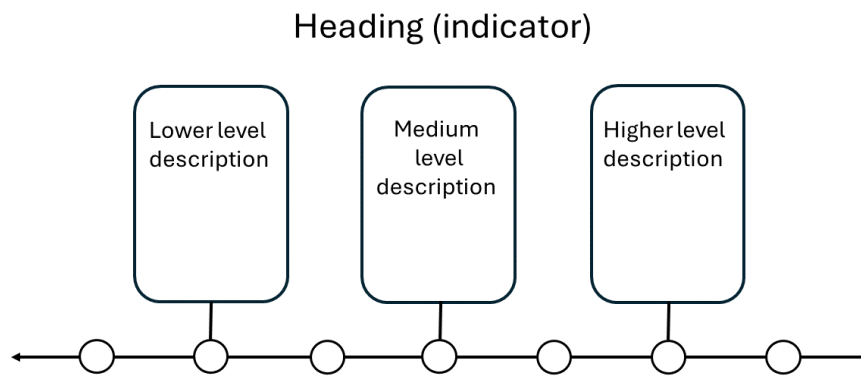


Fig.1. ECSS item structure

In Table 1, the content of an example item is presented. The three stories belong to the indicator "Revealing clients' needs" and make a continuum from lower-level characteristics to higher-level characteristics related to revealing clients' needs. Because the low-end stories should look positive, we tried to avoid the negative wordings and connotations in them.

**Tab.1. An example of an ECSS item**

Heading: Revealing clients' needs

(lower level)	(medium level)	(higher level)
For Regina, it is important to process a client's order fast. She understands that clients know their own needs and choose what they want.	Daria understands the needs of her clients correctly, even in a hurry. Sometimes she doesn't have the resources to reveal what else might be hidden in clients' requests.	Vera is better than any other employee in revealing what a client really needs. She asks for information until she understands the real needs of each client.

- (3) Expert assessment of the content validity. Having written the items, we mixed the stories in each item triplet in a random order and asked three external experts to (1) read the triplets and suggest a construct/indicator behind them; (2) sort the triplet in the order of ascending characteristics from low expression to high expression of the indicator. Based on the expert comments, minor changes were added to the stories.
- (4) Cognitive labs. The reviewed stories were arranged in the items according to the item format presented above, and an instruction was added together with a training item. The training item was unrelated to the scale. The respondents were informed that it is a 'try-out' item that introduces a new format; its triplet of stories described the people who differ in the frequency of sweets consumption. In the series of 7 cognitive laboratories, we tested both the content and the design of the new items. Different design details were checked, for example, we used labels of the continuum, no labels of the continuum, headings or no headings. It was shown that adding a heading above the triplet item which explicitly labels the indicator improves respondents' engagement and makes the task clearer for the respondents.

The final instrument consisted of 7 items. At the first study, they were not interactive and were added to the test as pictures followed by the traditional answer options with radio buttons. For example, for the item from Table 1, the instruction said: “Choose your typical behavior comparing to the characters”, and the radio buttons had the following descriptions:

- less than Regina
- equal to Regina
- between Regina and Daria
- equal to Daria
- between Daria and Vera
- equal to Vera
- more that Vera

Also, for this study, we developed a traditional Likert response format scale with 4 subscales: informing clients, revealing clients’ needs, establishing long-term relationships, and conflict management skills. Table 2 contains one example of items from each subscale and the number of items in them. To increase the variance of positive answers, the answer options were asymmetrical and included two disagreement options and four agreement options (“disagree”, “slightly disagree”, “slightly agree”, “almost agree”, “agree” and “strongly agree”) (Brown, Shulruf, 2023).

**Tab. 2. Examples of items from the Likert response format scales on client focus**

Subscale (Likert format)	N of items	Sample item
‘Informing clients’	5	“I know the specifics of our products and services very well“
“Needs revealing”	6	“I ask the client to tailor our offer to their individual needs”
“Long-term relationships”	5	“Clients come back because I create long-term relationships”
“Conflict management”	3	“I have successfully used communication techniques to placate an angry client”

*Piloting the scales*

The developed ECSS instrument and Likert response format scales were tested on a group of 100 people recruited in the testing platform, “Yandex Toloka”, the Russian analogue of Amazon’s “Mechanical Turk”. Only respondents who had experience with clients were left in the sample. The range of professions was very wide, from shop assistants to hairdressers.

The Rating scale model (Andrich, 2016) was used for the analysis of the Likert format instruments, because the answer options were the same in all the items. The Partial credit model (Masters, 2016) was used to analyze the ECS scale results, because each of the seven items might have had unique “distance” between the low, medium and high stories, resulting in different category functioning. The analysis was conducted in Winsteps software (Linacre, 2021).

In Table 3, the reliability coefficients for the scales are presented.



**Tab. 3. Reliability coefficients**

	Cronbach's alpha	Rasch person reliability (real)
Explicit continuum format	0.83	0.79
Likert – Informing clients	0.92	0.89
Likert – Revealing needs	0.95	0.94
Likert – Creating long-term relationships	0.95	0.93
Likert – Conflict management	0.91	0.86

Figure 2 presents the Wright maps for all the four scales of client focus with items on the right side along the vertical line (representing the continuum) and respondents – on the left side. Easier and lower score gaining persons are in the lower part of the map, while more difficult items and higher scoring respondents are on the upper part of the map. The mean of item difficulty is marked with M on the right of the vertical continuum line. The mean of the respondents' abilities is marked with M on the left of the vertical continuum line. As shown, the Likert format scales demonstrated higher ceiling effect and a very big positive shift (that can be seen as the distance between the mean difficulty of the items and mean ability of the persons). The ECS scale had no ceiling effect and was better-centered.

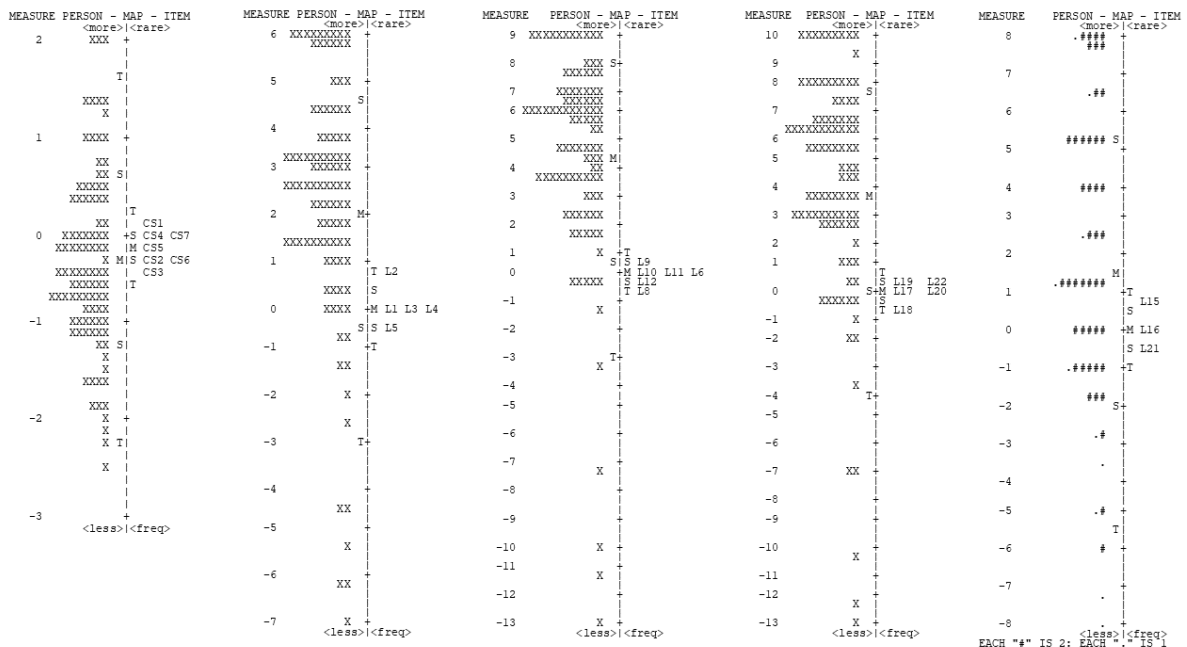


Fig. 2. Write maps of the scales (from left to right: 1) the ECSS instrument of client focus; 2) Likert-format scale “Informing clients”, 3) Likert-format scale “Customer needs” 4) Likert-format scale “Long-term relationships”, and 5) Likert-format scale “Conflict management”.

All the items of ECSS have good fit (infit and outfit MNSQ statistics were less than 1.3). The categories of most items worked well. The scale was unidimensional. The unidimensionality check was conducted on the residual matrix using principal component analysis. The eigenvalue of the first contrast was 1.8 which is below the conventional 2.0 (Smith, 2002).

All the Likert-format scales also were unidimensional (the eigenvalues of the first contrast varied from 1.58 to 1.93), and the items infit and outfit statistics were less than 1.3, except one items from the “Revealing clients’ needs” subscale, which was less than 1,5.

The Pearson correlation between the Likert response format scales and ECS scale ranged from 0.33 to 0.42 (see Table 4).

Tab. 4. Correlations of ECS and Likert format scales

	1	2	3	4	5
1. Scenarios					
2. Client’s need (Likert)	0.33				
3. Informing clients (Likert)	0.37	0.87			
4. Long-term relationships (Likert)	0.42	0.78	0.86		
5. Conflict Management (Likert)	0.37	0.74	0.77	0.82	

**Summary of the Study 1:** On a relatively small sample, we confirmed that the ECSS had good reliability, was unidimensional, fit the PCM well and showed no ceiling effect compared to the Likert format scales. The ECS scale was moderately-high correlated with measuring client-focus using Likert response format scales. We interpreted it as the fact that the instruments measured similar constructs.

***Study 2. ECSS in the situation of high stakes assessment***

After the small-scale Study 1, the ECS scale was used in a sample of 757 participants of a national competition for hotel and restaurant employees. The scale items were administered via the website of the competition, also in the format of pictures with traditional radio-buttons below, as in Study 1. Because the ECS scale was still a self-reporting instrument, the respondents were informed that it would not be used for the selection purposes and the feedback was intended only for their self-assessment. However, because the scale was used in the competition, we expected that high stakes context would distort the distribution. On the Wright map (Figure 3), the positive shift of the distribution is evident, the difference between the mean respondents’ measures and the mean difficulty of the items is equal to almost two standard deviations. However, no ceiling effect is visible. The distribution of answers resembles the normal distribution. Only 8 respondents gained the maximum or maximum minus one scores according to their self-reports (meaning that they

placed themselves higher than higher-end characters on all seven continuums or equaled themselves to the higher-end character only in one item).

The person reliability of the scale in this assessment was 0.76, Cronbach's alpha was 0.8. The test remained unidimensional (the eigenvalue of the first contrast of the PCA of the residual matrix was 1.4). All items had good fit-statistics (infit and outfit MNSQ were less than 1.3). Item 7 (about conflict management) remained the most difficult compared to the first administration. Item 2 (describing asking clients about their needs) remained the easiest item.

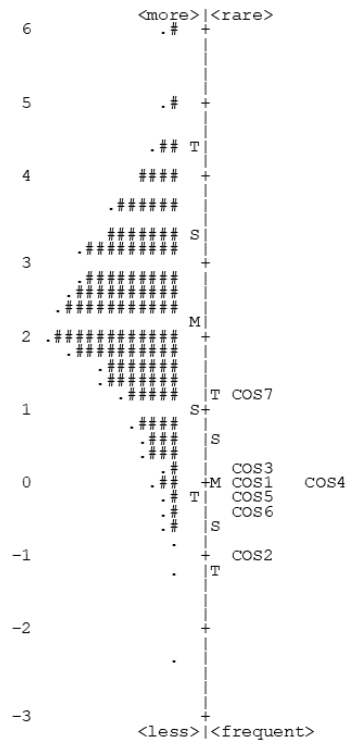


Fig. 3. The Wright (variable) map of the ECS scale of client focus in Study 2. Each "#" is 6, each "." is 1 to 5

**Summary of study 2.** In the situation of high-stake assessment on a bigger sample, the ECS scale did not show the ceiling effect, however, the positive shift is visible. Good psychometric characteristics of the scale remained stable.

### ***Study 3. Adding indicators and testing the interactive format of the ECS scale***

During Study 2, several experts raised concerns about the construct underrepresentation in the existing ECS scale. This led to several interviews with experts (a HoReCa (hotels, restaurants, café sector) expert who teaches courses on working with clients, a head of client relationships department of a large company, and two winners of a HoReCa competition) and review of popular business literature on client focus. After that, five items remained the same, while five new items were reworded or added according to the methodology described in Study 1:

- (old item) asking about clients' needs
- (old item) identifying clients' needs
- (old item) creating long-term relationships with clients
- (old item) informing clients about products and services

- (old item) managing conflicts with clients
- (new item) using knowledge of the company's internal processes to help clients
- (new item) establishing contact with clients (emphasis on the first impression)
- (new item) satisfaction from helping people
- (new item) working with clients' objections
- (new item) empathy towards clients

The updated items of the final scale version are listed in the Appendix 1. The third study finally tested the scale in the real interactive format as it was initially designed. The respondents had to click on one of the empty circles on the continuum line, placing their answer below a story or between them. The training item about sweet consumption was changed correspondingly.

The 10-item-scale was added to the pool of free-of-charge instruments belonging to the non-commercial organization, 'RSV', which provides university students with free assessment instruments intended for career counselling purposes. Because some students lack work experience, the instruction guided them to reflect the situations of both work experience and learning experience (such as internships, group practices and service learning projects) where working with clients might be relevant.

The sample consisted of 65,350 university students. Because not of them had real experience of working with clients, in the instruction, we asked them to think about any relevant situations, such as doing learning projects for external customers or internship experience. The sample was very large but not representative. The first 1000 answers were used for the norms to interpret the level of the client focus: high, medium or low – and provide the students with a descriptive feedback. The explicit division of vignettes in each item into three levels made it easier to use the Bookmark procedure to establish cut-off scores for the levels of client focus. Later, a larger norming group was used, but the instrument characteristics remained the same and norms were not changed.

The person reliability of the instrument in this whole sample was 0.84, Cronbach's alpha was 0.84. The scale remained unidimensional. In Table 5, the item characteristics are presented. MNSQ fit statistics of all the items were less than 1.2 and showed an excellent fit to the Rasch partial credit model. All the items have good correlations with the total score. However, item difficulties are close to the mean.

Tab.5. Item characteristics of the ECS scale on client focus

Item	Difficulty (logits)	Infit MNSQ	Outfit MNSQ	Item-Total correlation
SCOS 1	0,05	1,11	1,14	0,55
SCOS 2	-0,07	1,08	1,11	0,57
SCOS 3	0,03	0,97	0,97	0,63
SCOS 4	0,09	1,08	1,11	0,61
SCOS 5	0,07	0,97	0,96	0,63
SCOS 6	0,19	1,09	1,11	0,6
SCOS 7	-0,14	0,96	0,94	0,62
SCOS 8	-0,01	0,9	0,9	0,66
SCOS 9	-0,12	0,91	0,89	0,64
SCOS 10	-0,09	0,92	0,91	0,64

The distribution of the scores, shown on the Wright map (Figure 4) covers the range from -1 to 2 logits.

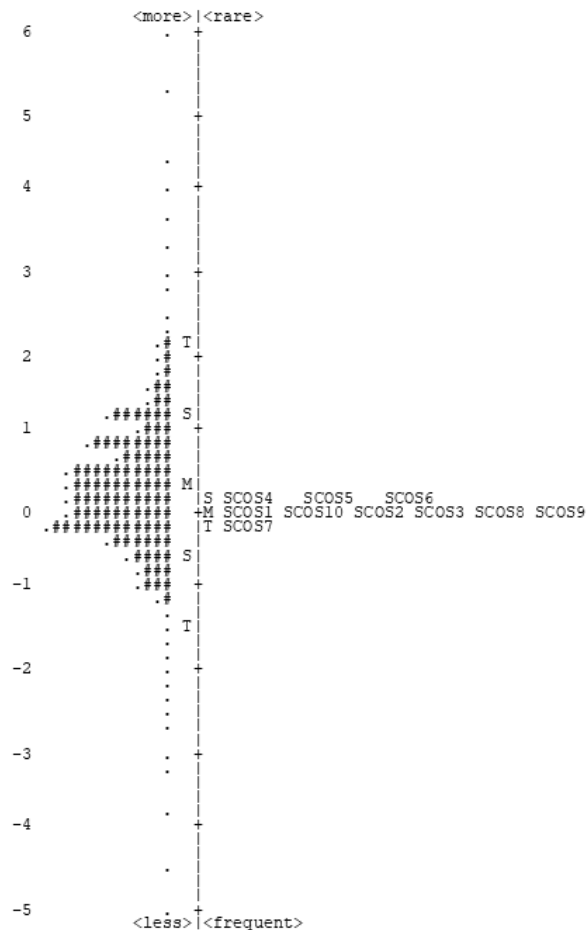


Fig. 4. Wright (variable) map of the ECS scale in a large scale study. Each "#" is 575, each "." is 1 to 574.

**Summary of Study 3:** The ECS scale was updated and coded into an interactive format and administered on a very large sample of students. The results show its unidimensionality, excellent reliability and very good item fit to the Partial credit model. However, the tendency of item difficulty to mean is an artifact of the format, because one item serves as a combination of three items (high, medium and low). Even when people differ in their choice, the mean result of the item is balanced around the mean. This artifact of the scale functioning may hinder the development process because in test development, especially in Rasch analysis, it is typical to rely on the expected (a priori) item difficulty and compare it with the empirical difficulty in the process of scale validation.

## Discussion

In this work, we piloted a questionnaire format which belongs to the type of full continuum presentation of a construct. The scale format explicitly describes the high, medium and low levels of the construct indicators. We used the elements of Rasch-Guttman scenario methodology (Ludlow, Baez-Cruz, Reynolds, 2020) in item development to make the vignettes more straightforward in interpretation.

The resulting scale of client focus demonstrates unidimensionality and high stability of its psychometric characteristics in different samples. We also showed that the scale is easily modified

without losing its stability. It does not show the ceiling effect, even in high-stakes conditions. We see comparable results in the non-interactive (when we use a picture to present the continuum) and in the interactive (when respondents choose their position directly on the continuum line) formats. University students and adults did not have problems with the format interpretation after seeing a training item.

However, some format limitations exist. The first one is the increased cognitive load to read the stories. In the case of Rasch-Guttman scenario scales, it was shown that respondents who demonstrated a higher misfit with the items spoke another language at home and had no higher education significantly more often than the better-fitting respondents (Antipkina, Ludlow, 2020). The ECSS vignettes might be prone to the same problem, so the target audience should be considered carefully. The second limitation is the tendency of item difficulties to mean which makes traditional (within the Rasch approach) item development process and result interpretation more difficult. This tendency is explainable by the format structure, but still needs attention.

The advantage of the format is the robustness of the results and dimensionality stability. Based on the results obtained, we conclude that the format is promising as a measurement method and might be beneficial in some measurement situations.

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## Appendix 1 The final ECS scale of client focus

Low	Medium	High
Asking about clients' needs		
<p>Polina follows the corporate standard of interaction with clients. She remembers the checklist with questions.</p>	<p>Elizaveta tries to understand the clients' characteristics. She expands the range of standard questions depending on who is in front of her.</p>	<p>Alina knows how to correctly ask any client. She listens to people carefully, encourages dialogue, and always finds out what problem they came to solve.</p>
Identifying clients' needs		
<p>For Regina, it is important to process a client's order fast. She understands that clients know their own needs and choose what they want.</p>	<p>Daria understands the needs of her clients correctly, even in a hurry. Sometimes she doesn't have the resources to reveal what else might be hidden in clients' requests.</p>	<p>Vera is better than any other employee in revealing what a client really needs. She asks for information until she understands the real needs of each client.</p>
Satisfaction from helping people		
<p>Inga feels that helping people is not her strength. She sometimes feels uncomfortable, even if people ask her what time it is on the street.</p>	<p>Rita is usually willing to spend a few minutes to solve another person's problem. Sometimes she is pleased to have the opportunity to help, if she has the resources and time.</p>	<p>Klara loves to help. In transport, she offers her help in lifting the stroller with the child; At work, she is happy when she manages to find the optimal solution for a client.</p>
Using knowledge of the company's internal processes to help clients		
<p>Christina knows only her segment of work well. She will inform the client about the specifics of the company processes only if the client insists on this information.</p>	<p>Olga knows the basic flow of the company processes. Sometimes she can tell the client how to take into account the specific processes in their order, for example, how to get a discount.</p>	<p>Anastasia thoroughly knows the processes throughout the company. She can offer the client all possible options, showing which may be optimal.</p>

Creating long-term relationships with clients		
It is important to Lydia that her work with clients is successful at the time of interaction. It is not her responsibility to create long-term relationships.	Anisya is usually polite. Regardless of the client's decision, she remains friendly because she thinks about the possible future communications.	Irina always does more than her clients expect. Her clients feel like important people and come back with repeat orders.
Informing customers about products and services		
Iiona knows the characteristics of the goods and services she works with. She knows how to talk about them clearly if asked.	When communicating with a client, Maria enthusiastically talks about products and services. She can describe details of each trade offer.	Zhanna presents everything from the perspective of the client's needs and benefits. She easily connects customer needs and the organization's products/services.
Managing conflicts with clients		
Sometimes Aglaya sincerely does not understand what the essence of the conflict is. It can be difficult for her to understand and share the problems of clients.	Marina listens carefully to dissatisfied clients and offers alternatives. But sometimes it is difficult for her to defend her position and not give in to the aggressive demands of clients.	Lilia actively listens to the client, understands the true reasons for dissatisfaction, and acknowledges their feelings. She confidently negotiates with the client, gaining maximum efficiency for both them and the business.
Establishing contact with clients		
Inna sometimes feels uncomfortable showing emotions in communication. She tries to minimize unnecessary communication with clients.	Elena tries to demonstrate a friendly mood. Overall, she rather enjoys interacting with clients.	Tatiana truly enjoys communicating with clients. She easily makes eye contact and smiles naturally when you meet her.

Working with clients' objections		
Julia usually doesn't know what to do with the client's objections. If the client argues against something, she remains silent or explains that this is not within her competence.	Alla is trying to learn how to work with customer objections. Sometimes she lacks the experience to successfully handle every such situation.	Eva uses knowledge of her clients' needs to build a dialogue. She finds different approaches to those for whom the price does not suit, who just like to talk or who are in a bad mood.
Empathy towards clients		
Sophia usually does not demonstrate understanding of the client's feelings. In the conditions of her work, she does not have the resources to become emotionally involved.	Raisa knows how to put herself in the client's shoes. Sometimes she sympathizes with people, but she is not always able to express this sympathy.	Nadezhda is regularly told that clients feel that she understands them and does everything to help. She manages to understand the emotions of each client.

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