



## Impact of cooking competence on satisfaction with food-related life: Construction and validation of cumulative experience & knowledge scales

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### ABSTRACT

Research into consumers' cooking competences mostly focuses on the nutritional qualities of the resulting meals and relies on non-cumulative measures of cooking skills. In response, the current article reports on several studies designed to construct and validate a set of cumulative scales to measure consumers' cooking knowledge and experience as well as the link to consumers' food-related life satisfaction. Expert interviews, focus groups, and previous research establish the themes and potential scale items. Then two surveys with representative samples of Danish food consumers serve to identify the critical scale items and assess the reliability and validity of the scales. The results demonstrate that the constructed knowledge and experience scales are cumulative, have high levels of reliability, and indicate the positive effects of such knowledge and experience on consumers' food-related life satisfaction.

Based on a survey with US citizens, Wolfson, Frattaroli, Bleich, Smith, and Teret (2016) conclude that there is broad public support for cooking education, but that research is needed to identify means for improving cooking competences. Also, in a recent review of cooking competence studies, McGowan et al. (2017) distinguish between skills related to cooking and to food competences; they conclude that there is a need for studies which integrate measures of both types of skills. In a response to this need, Lavelle et al. (2017) report the construction and validation of confidence measures related to cooking methods and preparation techniques as well as to food skills such as budgeting, shopping and meal planning.

In contrast to the scales developed by Lavelle et al. (2017), and to most other measures of cooking skills (e.g., Barton, Wrieden, & Anderson, 2011; Hartmann, Dohle, & Siegrist, 2013), which are all based on averaging respondent scores across multiple rated items (e.g., "On a scale from 1 to 7, how confident are you in preparing [soup, eggs, etc.]?"), the measures developed here are based on the establishment of competence hierarchies (cf., Fischer and Frewer, 2009). The construction of such hierarchies builds on the distribution of skills across survey samples, i.e., the more uncommon the skill, the higher the ranking. Hence, in the measures proposed here, a respondent's competence is equivalent to the rank of his/her most uncommon skill, given that the respondent also possess all or most of the other skills with lower rankings.

Apart from the facilitation of cooking skill evaluation and the study of the relation between cooking skills, nutrition and other aggregate

measures, e.g., food satisfaction, cumulative scales may contribute to the identification of effective starting points (cf. Wolfson et al., 2016) for the improvement of consumers' cooking competences. Fischer and Frewer (2009) propose a cumulative scale for food safety skills, but otherwise no cumulative scales related to cooking competences are available in extant literature.

Although poorly documented, the impression that cooking skills are deteriorating is a common foundation for many discussions and studies of food preparation (Engler-Stringer, 2010; Lyon et al., 2011). Home-cooking skills thus have been the subject of qualitative studies that focus on family, gender, and cross-cultural issues (e.g., Gatley, Caraher, & Lang, 2014; Halkier, 2009; Jaffe & Gertler, 2006; Simmons & Chapman, 2012) as well as pertinent surveys and quantitative studies (e.g., Barton, et al., 2011; Engler-Stringer, 2010; Fischer & Frewer, 2009; Hartmann, et al., 2013; Lyon et al., 2011; Pettinger, Holdsworth, & Gerber, 2006; Reicks, Trofholz, Stang, & Laska, 2014; van der Horst, Brunner, & Siegrist, 2011). For example, Lyon et al. (2011) report that variations in cooking skills across different age groups are marginal, and Hartmann et al. (2013) find that women have more elaborate cooking skills than men. Other studies note positive relations between cooking skills and the nutritional qualities of diets and home-cooked meals (e.g., Barton et al., 2011; Engler-Stringer, 2010; Pettinger et al., 2006; Reicks et al., 2014; van der Horst et al., 2011).

Seemingly, improved cooking skills could not only improve nutrition but also enhance consumers' food-related satisfaction and well-being (Ares et al., 2015; Meiselman, 2013), yet no research has

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documented such effects. For example, satisfaction with food-related life (SWFRL) is a construct that has been applied and validated in different contexts (e.g., Dean, Grunert, Raats, Nielsen, & Lumbers, 2008; Schnettler et al., 2013), but no studies indicate whether or how consumers' SWFRL pertains to their cooking skills. Considering Grunert's, Dean, Raats, Nielsen, and Lumbers (2007) and Meiselman's (2013) arguments that consumers' nutrition and food safety, as well as their food-related well-being and satisfaction, represent ends in themselves, there is a clear need to develop cumulative scales for cooking competences which pertain to consumers' satisfaction with their food-related life.

The studies presented here accordingly pursue two objectives: development of a set of cumulative measurement scales for consumers' cooking competences and testing whether these scales provide positive indicators of consumers' satisfaction with their food-related life (SWFRL). The construction of cumulative scales for cooking competences is complicated by the many issues involved in the preparation of a good meal, ranging from relatively concrete concerns, such as knowledge of food safety and nutritional qualities (e.g., Fischer & Frewer, 2009), to experience with different types of preparation, to more abstract issues, such as commensality or the art of being a good host (Ekström & Jonsson, 2005; Fischler, 2011; Jaffe & Gertler, 2006). The latter skills are not easy to model as cumulative nor can they be readily improved through information or other didactic means.

Before presenting the scale development methods, a discussion of terminology is appropriate. The terms skill and competence tend to be used interchangeably (e.g., Tamir, 1991), but skill generally connotes capabilities acquired from practical experience, whereas competence is a two-dimensional construct that comprises practical (experience-based) and cognitive (knowledge-based) capabilities (Barnett, 1994). This two-dimensional definition of cooking competences is in accordance with traditional didactics in home economics education, which usually combine lectures (knowledge diffusion) with in-kitchen practice (Brown, 1984). In addition, it may be possible to model the two dimensions of knowledge and experience as cumulative. Therefore, these dimensions provide the conceptual foundation for the scale construction process.

## 1. Method

The scale construction method involved both a qualitative pre-study and two web surveys with adult (18 years or older) Danish consumers. All studies were approved according to ethical standards.<sup>1</sup> The lack of previous research into the relation between cooking competences and SWFRL created the need for qualitative insights; the actual construction and validation of the scales relied on the two consecutive surveys. The samples for both surveys (see Table 1) were representative of the adult Danish population (anova,  $p > 0.05$ ) in terms of gender, age, household income and residence region.

The pre-study sought to generate potential ideas for themes and items for the scales. As detailed below, the first survey ( $n = 418$ ) then established a shortlist of items, on the basis of the reproducibility ( $RC > 0.85$ ) and scalability ( $SC > 0.6$ ) criteria for cumulative scales (Guttman, 1944; Menzel, 1953). This first survey featured 92 experience and knowledge items, presented as statements, which respondents assessed by answering either yes/no (experience items) or true/false (knowledge items). A consultation with expert sources (two nutritionists) confirmed the falsifiability of the knowledge items. Next, the second survey ( $n = 1008$ ) tested the nomological validity and reliability of the scales. Reliability of cumulative competence scales entails replications rather than association tests (Guttman, 1944), so the reliability of these scales was assessed by comparing the item rankings and scores across Surveys 1 and 2. Because cooking competences

**Table 1**  
Sample characteristics for survey 1 and 2.

Characteristic	Survey 1 n = 418		Survey 2 n = 1008	
	M	SD	M	SD
Age	47.8	15.5	45.4	13.4
	N	%	N	%
<i>Region</i>				
North	45	10.9	97	9.6
Central	93	22.5	244	24.2
South	87	20.8	235	23.3
Zealand	56	13.4	146	14.5
Capital Region	132	31.6	286	28.4
<i>Gender</i>				
Female	220	52.6	510	50.6
Male	198	47.4	498	49.4
<i>Household income</i>				
≤ 50.000 €	119	33.7	254	30.6
50.000–100.000 €	135	38.2	307	36.9
> 100.000 €	99	28.0	269	32.4

potentially relate to meal and food-related life satisfaction (Ares et al., 2015; Meiselman, 2013), this study also assessed the nomological validity of the scales, as the extent to which each respondent's scores in Survey 2 positively predicted their SWFRL (Grunert et al., 2007).

In the pre-study, a focus group interview included four female, primary school home economics teachers; five individual interviews also took place with restaurant chefs and other meal preparation experts of both genders. The interviews with the home economics teachers sought to explore contemporary perspectives on cooking education in Danish primary schools; the individual interviews ensured that the study included mainstream developments in food preparation and adult consumers' preferences, and that cooking skills of varying difficulty were discussed. Rather than gourmet or elitist perspectives, however, the interviewed chefs and experts represent restaurants and organizations that seek to match the preferences of mainstream food consumers.

Both the focus group and the interviews were conducted face-to-face, following a semi-structured guide that emphasized the meal types and components that the respondents considered most important for food-related life satisfaction, as well as the knowledge and experience needed to produce such meals. The individual interviews lasted between 30 and 40 min; the focus group lasted approximately 60 min. The interviews were recorded, and the essential parts, relevant to the focal topics, were transcribed and then combined with insights from previous research (e.g., Barton et al., 2011; Fischer and Frewer, 2009; Hartmann et al., 2013). The result was an extensive list of complementary meal components, cooking experience, and knowledge aspects of varying difficulty that were entered into the first survey instrument.

Participants in the focus group and individual interviews offered some consensus insights, namely, that (1) supper is the most important meal for SWFRL (see also Ekström & Jonsson, 2005); (2) the preparation of the various supper components (e.g., main dish and dessert), require experience with several types of processing as well as tacit capabilities such as dexterity; and (3) the production of a high-quality meal requires knowledge about the product (e.g., taste, healthiness) and the related processes (e.g., storage, cooking, safety) (Grunert, 1995). Based on these common insights, the authors derived six scales: two related to knowledge (Storage & Food Safety and Health & Taste) and four pertaining to experience (one for each course in a three-course supper, or Starters & Side Dishes, Main Dishes, and Desserts & Pastries, plus Dexterity & Preparation). The experience scale items represented a wide variety of dishes and tasks of varying difficulty formulated, for example, as "Within the previous year, did you debone a fish?/boil an egg" The knowledge items instead featured factual questions (e.g., 1

<sup>1</sup> The ethical guideline document of the MAPP Centre for Research on Customer Relations in the Food Sector can be provided on request.

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