



Increasing intention to cook from basic ingredients: A randomised controlled study



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ABSTRACT

The promotion of home cooking is a strategy used to improve diet quality and health. However, modern home cooking typically includes the use of processed food which can lead to negative outcomes including weight gain. In addition, interventions to improve cooking skills do not always explain how theory informed their design and implementation. The Behaviour Change Technique (BCT) taxonomy successfully employed in other areas has identified essential elements for interventions. This study investigated the effectiveness of different instructional modes for learning to cook a meal, designed using an accumulating number of BCTs, on participant's perceived difficulty, enjoyment, confidence and intention to cook from basic ingredients.

141 mothers aged between 20 and 39 years from the island of Ireland were randomised to one of four conditions based on BCTs (1) recipe card only [control condition]; (2) recipe card plus video modelling; (3) recipe card plus video prompting; (4) recipe card plus video elements. Participants rated their enjoyment, perceived difficulty, confidence and intention to cook again pre, mid and post experiment. Repeated one-way factorial ANOVAs, correlations and a hierarchical regression model were conducted.

Despite no significant differences between the different conditions, there was a significant increase in enjoyment ($P < 0.001$), confidence ($P < 0.001$) and intention to cook from basics again ($P < 0.001$) and a decrease in perceived difficulty ($P = 0.001$) after the experiment in all conditions. Intention to cook from basics pre-experiment, and confidence and enjoyment (both pre and post experiment) significantly contributed to the final regression model explaining 42% of the variance in intention to cook from basics again.

Cooking interventions should focus on practical cooking and increasing participants' enjoyment and confidence during cooking to increase intention to cook from basic ingredients at home.

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Abbreviations: SCT, Social Cognitive Theory; BCT, Behavioural Change Technique; ROI, Republic of Ireland; NI, Northern Ireland; UK, United Kingdom; RCT, Randomised Controlled Trial.

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1. Introduction

Recent concerns regarding the increase in diet related chronic diseases and obesity (Lim et al., 2013; Ogden, Carroll, Kit, & Flegal, 2014; Olshansky et al., 2005) have been partially attributed to a decrease in diet quality (Drewnowski, Fiddler, Dauchet, Galan, & Hercberg, 2009; Eyre et al., 2004). Factors associated with the decline in diet quality include; snacking, increased consumption of takeaways and meals consumed outside the home environment as

well as the increased consumption of convenience products, many of which contain excessive energy, sugars, fats and salt and low concentrations of dietary fibre (Monteiro, Levy, Claro, de Castro, & Cannon, 2011; Moore, Roux, Nettleton, Jacobs, & Franco, 2009; Wolfson & Bleich, 2015; Zizza & Xu, 2012). These factors have also transformed the domestic meal preparation landscape where meals are prepared at home. Current trends show that less time is being spent in meal preparation, larger portions are being served, less skills are being used to prepare meals and convenience products are being used in the majority of meals, if not the entirety of each meal (Beck, 2007; Daniels & Glorieux, 2015; Steenhuis & Vermeer, 2009; Worsley, Wang, Wijeratne, Ismail, & Ridley, 2015).

In response to this transformation in food preparation and the types of food products typically consumed, there has been an increase in the number of nutrition intervention programmes; specifically cooking skills interventions (McGowan et al., 2015; Reicks, Trofholz, Stang, & Laska, 2014). The desire for the population to return to home meal preparation has been highlighted throughout government policies and the academic literature, and by the media and health professionals (Jones et al., 2012; Caraher, Seeley, Wu, & Lloyd, 2013; Jamie Oliver Food Foundation, 2015; U.S. Department of Health and Human Services, 2016). While research has shown positive outcomes resulting from home meal preparation including improved diet quality and weight reduction (Chen, Lee, Chang, & Wahlqvist, 2012; McGowan et al., 2015; Wolfson & Bleich, 2015; van der Horst, Brunner, & Siegrist, 2011), it has also been shown that the inclusion of processed convenience products in modern home meal preparation (Beck, 2007; Daniels & Glorieux, 2015) has negative dietary implications (Monteiro et al., 2011). Therefore, when discussing the merits of home meal preparation in the public domain, the possible negative side effects of consuming processed convenience foods (typically those high in sugars, salt, fat and additives), including weight gain (van der Horst et al., 2011) and a possible link to an increased risk of autoimmune diseases must be highlighted (Lerner & Matthias, 2015). Thus, what may be needed is the encouragement to increase cooking from minimally processed basic ingredients and a reduction in the use of convenience products (Lavelle et al., 2016a), similar to the guidelines of other countries, such as in Brazil, where one of the key recommendations is “*Always prefer natural or minimally processed foods and freshly made dishes and meals to ultra-processed products*” (Monteiro et al., 2015).

In general, the aim of the majority of cooking interventions has been to improve diet quality through increasing cooking and food skills (McGowan et al., 2015) and not solely on cooking from basic ingredients. However, studies have shown that consumers with higher levels of cooking skills are less likely to use many convenience products (Hartmann, Dohle, & Siegrist, 2013). Self-efficacy theory (Bandura, 1977) has shown that perceived confidence and difficulty may play key roles in the implementation of a behaviour. In addition, intrinsic motivation (the enjoyment in performing the activity), is theorised to be a driver in behavioural change in Self-determination theory (Deci & Ryan, 2008). The importance of enjoyment in sustained behavioural change has also been qualitatively supported by those who were successful in their behaviour change maintenance (Penn, Moffatt, & White, 2008). Furthermore, some studies have shown that increased enjoyment in cooking may follow the learning of simple and easily replicable recipes which increase confidence and help participants to engage more with cooking in their home environment, with a positive impact on diet quality (Caraher et al., 2013; Hartman, Wadsworth, Penny, van Assema, & Page, 2013; Hartmann et al., 2013; Reicks et al., 2014; Stead et al., 2004). In addition, Chapman-Novakofski and Karduck (Chapman-Novakofski & Karduck, 2005) found a significant decrease in the perceived difficulty in meal preparation by women who participated in a cooking intervention study. Enjoyment,

confidence and perceived difficulty have been theoretically linked to behaviour change and empirically connected to home cooking in general, however little is known about their impact on cooking from scratch. As there is an increased awareness of negative effects of the use of convenience products in modern home cooking, it is important to understand how enjoyment, confidence and perceived difficulty are associated with cooking from basic ingredients.

Despite the current interest in cooking skills interventions, many of the devised adult programmes tend not to be underpinned by a theoretical framework (McGowan et al., 2015). Those that use theories cite psychological theories, such as Social Cognitive Theory (SCT) (Adam, Young-Wolff, Konar, & Winkleby, 2015) but provide few details on how these were operationalised or implemented for the intervention. Additional theories used in interventions and teaching cooking skills includes Applied Behavioural Analysis, Systematic Instruction and Information Processing Theory and Blooms Taxonomy (Anderson, Krathwohl, & Bloom, 2001; Bloom, 1956; Graves, Collins, Schuster, & Kleinert, 2005; McGraw-Hunter, Faw, & Davis, 2006; Taber-Doughty et al., 2011).

While there is overlap between these theories from different disciplines, for example relating to key techniques such as observation and modelling, the important techniques that provide optimal learning of cooking skills remain unclear. Using an existing framework that can be applied to multiple types of interventions with the goal of changing or increasing certain behaviours would be one method which would enable the identification and replication of successful elements and allow comparisons between interventions. Michie and colleagues (Michie et al., 2013) developed such a framework, a 40-item CALO-RE taxonomy of Behaviour Change Techniques (BCTs) such as goal setting and provision of information. This taxonomy was created so that researchers could identify and repeat successful elements in interventions that target change in behaviours. The identification of common successful BCTs in different types of interventions is important as there is an increasing number of general health interventions incorporating cooking demonstrations and practical sessions as one element of the intervention.

This study had two aims; firstly, to examine the role of enjoyment in cooking, perceived confidence to cook a recipe, and perceived difficulty of meal preparation on the intention to cook from basic ingredients. The second aim was to investigate the effectiveness of different ecologically valid instructional modes for learning to cook a meal based on accumulating numbers of behaviour change techniques on perceived difficulty, enjoyment in cooking, confidence in cooking and intention to cook from basic ingredients.

2. Methods

2.1. Sampling and design

This research was a dual-site randomised controlled study conducted in Sligo (Republic of Ireland [ROI]) and Coleraine (Northern Ireland [NI], United Kingdom [UK]). A dual-site study was chosen as the project was funded as an island of Ireland study and therefore a sample from both NI and ROI was required. Using G Power, a sample size of 148 participants was calculated as being required for a medium effect size. In total, 160 young mothers that lived within a 30-mile radius of the two sites were recruited by the market research company SMR. Mothers were chosen as the target population as they remain the primary source for learning cooking skills (Lavelle et al., 2016b) and recent research suggests that there is a culinary transition and that mothers may not have the skill level to prepare meals from scratch (Lang & Caraher, 2001).

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