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Title: Increasing intention to cook from scratch: A randomised controlled intervention

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Introduction

Recent concerns over the increase in diet related chronic diseases including obesity (Ogden et al., 2014; Olshansky et al., 2005; Lim et al., 2013) have been partially attributed to a decrease in diet quality (Drewnowski et al., 2009; Eyre et al., 2004). A number of factors associated with the decline in diet quality include; snacking, increased consumption of take away and meals consumed outside the home environment as well as the increased consumption of convenience products (Zizza and Xu, 2012; Moore et al., 2009; Monteiro et al., 2011; Wolfson and Bleich, 2015). These factors have also transformed the domestic meal preparation landscape where meals are prepared at home. Current trends show less time is spent in meal preparation, larger portions are served, less skills are used to prepare the meal and convenience products are being used in the majority of meals if not the entirety of the meal (Beck, 2007; Worsley et al., 2015; Steenhuis and Vermeer, 2009; Daniels and Glorieux, 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 more specifically cooking skills interventions (Reicks et al., 2014; McGowan et al., 2015). The desire for the population to return to home meal preparation has been highlighted as a significant concern throughout government policy, media, health professionals and in the academic literature (Jones et al., 2012; Caraher, Seeley, Wu, & Lloyd, 2013; Oliver, 2015; National Cancer Institute, 2016). While research has shown positive outcomes from home meal preparation including improved diet quality and weight reduction (Wolfson & Bleich, 2015; Chen, Meei-Shyuan, Yu-Hung, & Wahlqvist, 2012; McGowan et al., 2015; van der Horst, Brunner, & Siegrist, 2011) it has also been highlighted that the inclusion of convenience products in modern home meal preparation (Beck, 2007; Daniels and Glorieux, 2015), has negative dietary implications (Monteiro et al., 2011). Therefore caution should be exercised when discussing the merits of home meal preparation in the public domain. An awareness of the possible negative side effects of consuming 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 is needed is the encouragement to increase cooking ‘from scratch’ and the reduction in the use of convenience products (Lavelle et al., 2016), similar to the guidelines of other countries, such as 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 the cooking interventions has been to improve diet quality through increasing cooking and food skills (McGowan et al., 2015) and not solely on cooking from scratch. However, studies have shown that those with higher levels of cooking skills are less likely to use many convenience products (Hartmann et al., 2013). Furthermore, some studies have shown an increased enjoyment in cooking, learning from simple and easily replicable recipes and increasing confidence help participants to engage with cooking more in their home environment, with a positive impact on diet quality (Caraher et al., 2013; Reicks et al., 2014; Stead et al., 2004; Hartmann et al., 2013; Hartman et al., 2013). In addition, Chapman-Novakofski and Karduck (2005), found a significant decrease in the perceived difficulty in meal preparation after partaking in a cooking intervention study with women.

Furthermore, despite the current interest in cooking skills interventions, many of the devised community or adult? programmes tend not to be underpinned by theoretical concepts (McGowan et al., 2015). Those that do, cite psychological theories, such as Social Cognitive Theory (SCT) and the Transtheoretical Model (Adam et al., 2015;) provide few details on how the theories informed? were operationalised or implemented during the planning of the intervention. Learning cooking skills is also addressed in the occupational therapeutic literature, where it is seen as a basic fundamental life skill needed for a satisfactory functioning life for people with disabilities (Graves et al., 2005; McGraw-Hunter et al., 2006). Here, Applied Behavioural Analysis, Systematic Instruction and Information Processing Theory (Graves et al., 2005; ...) are used in the interventions design. In educational settings, the teaching of cooking skills is frequently underpinned by Blooms Taxonomy (1956; Anderson et al., 2001 Fordyce-Voorhams work?) which is based on three domains of learning: cognitive, affective and psychomotor. While there is overlap between these theories, for example relating to key techniques such as observation and modelling, the important techniques that provide

optimal learning of cooking skills remains unclear. In relation to this, Michie and colleagues (2013) developed a 40-item taxonomy of Behaviour Change Techniques (BCTs), for example, 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. This form of standardisation could be implemented within cooking interventions and enable the identification and replication of successful elements. Needs more description as to how it informed this work??

In light of this, this study designed and tested the efficacy of some commonly used BCT's in cooking interventions, through different instruction modes, to make a meal from scratch. In addition, the role played by enjoyment, confidence and perceived difficulty on intention to cook from scratch were explored. Fine but in terms of the above so how did Michie et al inform the intervention/study?

Methods

Design and Sampling

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 sample of young mothers (77 participants in NI, 64 participants in ROI) were recruited by the market research company SMR as mothers remain the primary source for learning cooking skills (Lavelle et al., *under review*). Participants were eligible if they were between the ages of 20 to 39 years, had young children, were of a lower socioeconomic status, had no strict dietary requirements (such as lactose intolerant, vegetarian) and prepared meals more than twice a week using mainly prepared ingredients. Participant's incentive package for taking part in the study included a small financial gift as contribution for time and travel, a cookbook and a cooked meal to take home. Women were randomised after recruitment to one of four conditions (1) recipe card only [control condition]; (2) recipe card plus video modelling; (3) recipe card plus video prompting; (4) recipe card plus video elements. The four conditions were based on the most commonly found BCT's in cooking and food

skills interventions (See Table 1) (Hollywood et al., *under review*). The effects of the different BCTs (Michie et al., 2013), through different modes of instruction, on the intention to cook the meal again from scratch was investigated. Each condition offered a technique that could be used by a person when trying to learn to cook adding ecological validity. Participants were provided with cooking instructions on how to cook a lasagne from scratch based on one of four conditions within which the mode of instruction varied. Condition 1, was the control condition, where a recipe card with a picture, similar to a traditional cookbook was used. This condition addressed the technique provide instruction on how to perform behaviour (BCT 21). Condition 2 added video modelling to the recipe card, where participants watched a full demonstration of the meal being made on a tablet prior to starting the cooking task, this condition is similar to watching a meal being cooked on a TV programme. Condition 2 added BCT 22; Model or demonstrate the behaviour. In condition 3 video prompting, where participants watched a step by step instruction in a guided sequence while cooking the recipe, was added to the recipe card. This condition was similar to learning meal preparation in a school setting where a teacher would demonstrate skills in a step sequence and then the class would copy the teacher after each step. This condition included BCT's 21, 22 and BCT 9; set graded tasks. In the final condition the recipe card and the video elements were presented to the participants and they were told they had full control of viewing the video clips as and when they needed to while cooking the recipe. This was considered similar to current use of online videos including YouTube clips, where they can watch full videos, watch elements, replay or rewind. Condition 4 addressed all previous BCT's and BCT 26; behavioural practice/rehearsal. In the condition regardless of whether the participants watched the video elements or not, they were advised to 'practice.' All other aspects of the experiment (e.g. ingredients, equipment, allotted time and protocols, etc.) were controlled and kept identical in all four conditions and across both sites including the observers (two researchers attended all sessions across both locations to maintain consistency).

[Insert Table 1]

Ethical approval for this study was obtained from Queen's University Belfast Research Ethics Committee and research was conducted in accordance to the guidelines given in the Declaration of

Helsinki. All participants consented to partake in the study and were aware that they could withdraw at any point in the experiment.

Procedure and Measures

For the cooking experiment, participants were required to make a lasagne from basic or raw ingredients following the instructions given in their assigned condition, within an allocated time. The lasagne recipe was developed by the researchers (including two Home Economic lecturers) to include multiple skills and different ingredients. All aspects of this intervention were extensively piloted from initial concepts to final format. Piloting occurred in both sites to reduce any differences between sites. Minimal changes occurred after these trials, such as the inclusion of background music to make the atmosphere more relaxing and to give a homely feel, the reduction of the number of observers as to reduce the stress on the participants. It was deemed acceptable for observers to intervene in the experiment if it was felt there was a significant health and safety risk to the participant, however, this was to be noted.

All eligible participants completed an adapted cooking and food skills questionnaire at home (McGowan et al., *under review*) and brought it to the site. This enabled the researchers to determine baseline cooking skills confidence and food skills confidence. Once all questionnaires were collected from participants, participants were informed of the dish they were making ‘lasagne from scratch.’ First participants completed questions regarding previous attempts at making lasagne and the types of ingredients used (of the participants that reported the types of ingredients used in previous lasagnes, 72% used convenience products). They also were asked four questions which were repeated again at the mid-point and post the experiment. These four questions were; (1) at this moment how confident do you feel about producing a safe, edible meal (not at all confident to extremely confident); (2) At this moment, how enjoyable do you think you will find cooking this meal (not at all enjoyable to extremely enjoyable); (3) At this moment, how difficult do you think it will be to cook this meal (not at all difficult to extremely difficult); and (4) At this moment, do you think you would cook this meal from scratch at home (not at all likely to extremely likely)? All answers were given on a 7 point Likert score, ranging from 1 to 7.

Data Analysis

All data were analysed using IBM SPSS Statistics Version 22 (IBM Corporation, 2013). Descriptive statistics (means, standard deviations [SD]), Chi squared and ANOVAS with Tukey HSD post hoc tests were used to assess any baseline differences between the four conditions (recipe only, recipe plus full demo, recipe plus video prompting, recipe plus video elements). For the analysis the answers of the four questions of confidence, enjoyment, perceived difficulty and intention to cook from scratch again, were recoded to scores with low scores being negative and high scores being positive, with the exception of level of difficulty, which lows scores of difficulty being positive and high scores being negative. Repeated measures one-way factorial ANOVAs were conducted to test between and within conditions, to determine an interaction effect of the intervention for confidence, enjoyability, difficulty and likelihood to cook again. Using correlations, the strength of the relationships among the variables were evaluated. Further, using a hierarchical regression model, it was determined how much of the variance in the dependant variable (likelihood to cook the meal again from scratch) was accounted for by the predictor variables (likelihood to cook again at the beginning, and both pre and post scores for confidence, enjoyability, and difficulty). These interactions were considered as significant for all analysis, at a level of 0.05.

Results

Baseline

The baseline demographic details between the different conditions are displayed in Table 2. There were no differences between the conditions on all measures, however, there was a borderline significance found in food skills confidence, with condition 4 participants having less food skills confidence than participants in condition 1 and 3. Further, there was no differences between the conditions for: the highest level of education achieved ($\chi^2 (1,139) = 13.15, P = 0.36$), number of children ($\chi^2 (6,139) = 10.05, P = 0.12$), perceived weight status ($\chi^2 (9,140) = 6.49, P = 0.69$), and the type of ingredients used in previous versions of lasagne ($\chi^2 (12,125) = 12.18, P = 0.43$).

[Insert Table 2]

Effect of experiment

Factorial repeated measures ANOVAs were conducted to check for the effects of the experiment and an interaction effect, conditions and time on confidence scores, enjoyment scores, perceived levels of difficulty, and likelihood to cook the meal again from scratch. For each score no significant difference was found between the conditions; confidence ($F = 1.18 (3,137)$, $P = 0.32$), enjoyment ($F = 0.54 (3,136)$, $P = 0.66$), difficulty ($F = 0.39 (3,137)$, $P = 0.76$), and intention to cook again from scratch ($F = 2.28 (3,137)$, $P = 0.32$). However, for each of these scores, a significant effect of time was seen (Figure 1). Confidence significantly increased across all time points ($P < 0.001$). With a large effect size (Eta squared = 0.44). The effect of time for enjoyment scores was also seen ($P < 0.001$), with a large effect size (Eta squared = 0.17). There was a significant increase in enjoyment between the start and the end and midpoint and the end of the task ($P < 0.001$). Again for difficulty scores a significant effect of time was seen ($P = 0.001$), with a medium effect size (Eta squared = 0.10). There was a significant decrease between the start and midpoint and the start and the endpoint for difficulty scores ($P < 0.05$), however, no further decrease was seen between the mid-point and the end point. Finally, there is a significant effect of time ($P < 0.001$) for intention to cook the meal from scratch again, with intention to cook increasing over each time point ($P < 0.05$). With a large effect size (Eta squared = 0.32).

[Insert Figure 1]

There was no significant difference between the conditions for the amount of time it took to complete the lasagne ($F = 1.41 (3,118)$, $P = 0.16$), with times ranging from 15 minutes to 170 minutes. The mean and SD for each condition was: Condition 1 - 73.50 min (31.57), Condition 2 – 70.48 min (17.64), Condition 3 – 81.28 min (20.51), and Condition 4 – 71.67 min (14.67).

Predictors of Intention to cook from scratch

Bivariate correlations between the intention to cook a meal from scratch again, confidence in cooking, enjoyment and in perceived difficulty of cooking are given in Table 3. Confidence ($r = 0.38$, $P < 0.01$) and enjoyment ($r = 0.50$, $P < 0.01$) in the cooking experiment was positively associated with intention

to cook from scratch again. Perceived difficulty of cooking the lasagne was negatively correlated with intention to cook again ($r = -0.26$, $P < 0.01$). Similarly, confidence was positively correlated with enjoyment ($r = 0.42$, $P < 0.01$) and perceived difficulty was negatively correlated with both confidence ($r = -0.27$, $P < 0.01$) and enjoyment ($r = -0.19$, $P < 0.05$).

[Insert Table 3]

Table 4 shows the results of a hierarchical multiple regression predicting intention to cook the meal from scratch again. The baseline model included the participants' intention to cook the meal from scratch at the beginning of the experiment as a potential predictor of cooking from scratch upon completion of the experiment. This variable accounted for 28% of the variance, with a significant independent contribution ($P < 0.001$). As the different models are accumulative, models 1 and 2 control for initial conditions and model 3 tests the impact of enjoyment, perceived difficulty and confidence on intention to cook from scratch. Model 2 included the participants' confidence, enjoyment and difficulty scores at the beginning of the experiment. These variables accounted for a further 4% of the variance. In model 3, the model was adjusted to include participants' confidence, enjoyment and difficulty scores at the end of the experiment which lead to an additional 10% of the variance being explained. Each model explained a significant amount of variance ($P < 0.05$). The final model explained 42% of the total variance in participants' intention to cook the meal from scratch again.

[Insert Table 4]

Discussion

This novel study investigated people's intention to cook from basic ingredients when the instructions are presented in different modes. In addition, the impact of enjoyment, confidence and perceived difficulty of the task on the intention to cook from scratch was studied using an RCT design. It is the first study to design the experimental conditions based on commonly found BCT's in cooking interventions. Overall, while the intervention increased the participants' intentions to cook the meal again from basic ingredients, no differences were found between the different conditions. This may show that the important component of the intervention is the practical experience and the instruction

on how to make the dish is not as essential. Further possible reasons for no difference between the conditions being found are discussed in the limitations section, however, the importance of identifying and detailing the use of BCTs in future interventions should still be implemented to assess these results taking into consideration the limitations of this study.

The positive correlations between confidence, enjoyment and likelihood to cook again and the negative correlation with difficulty, highlight how these elements are linked and that all these elements should be considered when designing future cooking and food skills interventions. The increase in confidence after practical experience of cooking seen here is similar to findings by Wriden et al (2007). Furthermore, the results support previous qualitative research which noted that those participants with a higher cooking efficacy attributed it to the practical hands on cooking experiences they had at a younger age (Lavelle et al., 2016). Thus, it appears that practical cooking experience increases cooking confidence and it should be an essential component to interventions or programmes with the aim of increasing home meal preparation and cooking from scratch.

The observed decrease in difficulty over the course of the experiment is regarded as a positive outcome of this intervention, this mirrors what Chapman-Novakofski and Karduck (2005) found in their study which was a cooking intervention aimed at a clinical population. Considering that desire for effortless meals has been previously inferred as a barrier to cooking from scratch (Lavelle et al., 2016) reducing perceived difficulty may encourage general consumers to cook from scratch as it is removing a barrier to this type of cooking.

The role of enjoyment in cooking is an element that may not be the focus of studies and interventions that promote cooking skills with a health agenda (Lang and Caraher, 2001), however, this may be a crucial component to the success of these interventions. Our results show that enjoyment increased with practical cooking experience and enjoyment was the most significant predictor of intention to cook from scratch in our final regression model. Previous studies have shown that enjoyment was the most significant predictor of cooking skills (Hartmann et al., 2013) and that adults who enjoyed cooking were most likely to have engaged in meal preparation at younger ages (Laska et al., 2012). In light of this, the importance of enjoyment in health promoting cooking interventions is evident.

281 Practical cooking experience increases enjoyment, adults who enjoy cooking have had experience at
282 younger ages, those that enjoy cooking have greater cooking skills and increasing enjoyment
283 increases intention to cook from scratch. Health promoting cooking interventions should have a strong
284 emphasis on the enjoyment and fun in cooking for optimal outcomes.

285 Similar times for completion when using different methods, highlighting that although some methods
286 for learning skills may appear to take longer, in reality the amount of time may not be as significant as
287 using the participants preferred method. Lack of time has been stressed throughout the healthy eating,
288 home meal preparation and cooking from scratch literature (Jabs & Devine, 2006; Wolfson et al.,
289 2016; Lavelle et al., 2016) as a barrier. This study suggests that when learning new meals, there is no
290 time difference between the different mode of delivery, indicating that the choice of medium is not
291 significant, thereby suggesting the importance of encouraging people to choose the method they find
292 the most effective method for learning rather than the method they consider the fastest. This may then
293 result in inspiration to try cooking new meals or meals that had previously relied on convenience
294 products from scratch more often.

295 The regression model accounts? for a substantial amount of the variance (42%) in likelihood to cook
296 again from scratch, which suggests the practical experiment (the additional 10% in the final model)
297 contributed significantly to their intention to cook from scratch. This would appear to support past
298 qualitative research which suggested that practical experience increased self-efficacy in cooking and
299 this facilitated their cooking from scratch (Lavelle et al., 2016). Both enjoyment and confidence
300 remained as significant predictors in the final model, suggesting that these are particularly important
301 factors when considering the design and implementation of cooking interventions. However, it should
302 be noted that a lack of confidence at the beginning of the intervention also had a significant impact on
303 intention to cook again. This was further investigated and appeared to be a statistical a nominally. The
304 unaccounted variance (58%) in intention to cook from scratch again, may be attributable to external
305 factors which were controlled in this experiment. In the home environment barriers to cooking from
306 scratch have been previously explored (Lavelle et al., 2016) and can include family preferences,
307 financial restraints, time pressures of work and family commitments and previous negative

experiences. Future interventions must take these external factors into consideration and design strategies to permeate through their interventions that help participants cope with and overcome these barriers to maximise participants' likelihood of cooking from scratch again in their home environment.

Implications for cooking interventions

The importance of home meal preparation has been previously stressed (Short, 2006; Caraher & Lang, 1999; Halkier, 2009) which has resulted in the increase of cooking interventions to enable the general population to do this (Reicks et al., 2014; McGowan et al., 2015). Recently, in a European population it was shown that only 30% of the household budgets are being spent on raw or basic ingredients (Daniels and Glorieux, 2015). Similarly, in this study, only 28% of participants had not used convenience products in previous attempts at preparing a Lasagne. The negative health aspects of convenience products (Moodie et al., 2013; Lerner and Matthias, 2015; van der Hoorst et al., 2011) have been noted and it has also been shown that health is a principal motivator for cooking for scratch (Lavelle et al., 2016). Therefore, it is important for health promoting cooking interventions to support cooking from scratch. From our results it can be seen that increasing confidence and practical experience are essential to improving intentions to cook from scratch and strategies should be implemented to improve confidence in cooking. Interventions should include some level of practical cooking experience, ideally some element in each session if feasibly possible. Most notably from our study is the importance of enjoyment in cooking which may not always be an element considered in health focused cooking interventions (Lang and Caraher, 2001). Interventions should be practical with some fun activities and some achievable cooking activities to increase confidence.

Strengths, Limitations and Future Research

A key strength to this study lies in its randomised control design and that each condition for the experiment had both ecological validity and incorporated and explicitly highlighted its use of some commonly implemented BCT's in cooking research. Some limitations to this study must be considered and in turn provide areas for improvement for future research.

Although participants recruited were screened for using mainly prepared ingredients, a small number of this sample had previously made a lasagne from scratch. The recipe was chosen and adapted from the funding body's cookbook, future interventions should consider using a relatively new or unknown recipe not commonly cooked in its target population. The sample consisted of young mothers only and this could be regarded as a further limitation of this study. Currently, mothers remain as the main cook in households (Lavelle et al., *under review*), and perhaps targeting a different sample of the population, such as young men or students, or a larger sample size would yield different results that can be compared. Furthermore, the results should be considered within the cultural context of the UK and Ireland populations; it may be interesting to repeat this study in other populations to understand key cultural differences.

Measures discussed were self-reported and therefore the data may be subject to social desirability. This being said, participants were not focused on the measurements but on the actual act of cooking; they may not have had much time to consider what would be a socially desirable response.

Although the strength of this study is in the randomised controlled design, it would be interesting to repeat this study where participants were able to choose what instruction method they were able to follow to see whether this impacts the differences between the conditions. As there was no differences between the conditions when participants were randomised to each condition, by allowing participants choice in their learning, it increases autonomy, which is a key element of adult learning (Taylor and Hamdy, 2013). In addition, as there are different types of learners and by giving the participants the choice of whichever condition is close to their learning style may achieve better outcomes and would establish initial evidence in how different learning styles impact cooking education (Pashler et al., 2008).

Conclusions

The practical experience of cooking a meal appears to have a greater impact on the likelihood to cook a meal from scratch rather than the different methods used in learning to make the dish. Enjoyment in cooking the meal and confidence in cooking the meal have a significant impact on intention to cook

from scratch. In light of these results, cooking and food skills interventions should focus on the practical experience of cooking and increasing participants enjoyment and confidence during interventions with the aim of increasing the likelihood of increasing and maintaining cooking from scratch within the home.

Abbreviations:

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

Ethics approval and consent to participate

Ethical approval for this study was obtained from Queen's University Belfast Research Ethics Committee and research was conducted in accordance to the guidelines given in the Declaration of Helsinki. All participants were informed that by taking part in the survey they were giving consent for their data to be used.

Consent for Publication

Not Applicable

Availability of data and materials

Database available upon request presently, as further publications are planned, however, it will be made openly available when publications are completed.

Competing Interests

The authors declare that there are no conflicts of interest.

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387 **Author Contributions**

388 FL and MD conceived the manuscript. FL conducted the data analysis with advice from MD.
389 FL drafted the manuscript and MD edited. All authors read, edited and approved the final
390 manuscript.

391

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554 **Table 1 – Overview of Experimental conditions**

	Condition 1	Condition 2	Condition 3	Condition 4
Experimental Instructions	Recipe plus picture only – static cookbook condition – CONTROL	Video modelling (plus recipe) (watch full demo as a group, then -> cook - with recipe + pic)	Video prompting (plus recipe) (do it in a sequence, step by step – > cook - with recipe + pic)	Video ‘elements’ (plus recipe) – user has total control over what to watch/re-watch) -> cook - with recipe + pic
Ecological Validity	Similar to traditional cookbook	Similar to seeing on TV	Similar to School, Teacher demonstrate skill and class repeats	Similar to watching video clips online, can watch parts of videos, rewind, fast forward, repeat.
BCTs	21	21 + 22	21 + 22 + 9	21 + 22 + 9 + 26
BCT Explanations	Provide instruction on how to perform behaviour	Provide instruction on how to perform behaviour	Provide instruction on how to perform behaviour	Provide instruction on how to perform behaviour
		Model or demonstrate the behaviour	Model or demonstrate the behaviour	Model or demonstrate the behaviour
			Set graded tasks	Set graded tasks
				Behavioural practice/rehearsal- As regardless of whether the participants watch the podcasts or not, they are being advised to ‘practice’

555 **Table 2 – Baseline demographic characteristics of participants by condition**

Baseline	Significance (P)	Recipe Only	Recipe + Full Video	Recipe + Video Prompting	Recipe + Video Elements
Number		34	33	35	39
		M (SD)	M (SD)	M (SD)	M (SD)
Age	0.27	31.52 (5.77)	30.03 (5.51)	31.28 (5.64)	29.18 (5.78)
Perceived Enjoyment	0.42	4.94 (1.37)	5.27 (1.26)	4.91 (1.48)	4.72 (1.49)
Perceived Difficulty	0.19	3.35 (1.35)	3.88 (1.36)	3.80 (1.23)	3.33 (1.42)
Likelihood to cook again	0.40	4.59 (1.76)	4.67 (1.43)	5.23 (1.65)	4.85 (2.01)
Perceived Confidence	0.49	4.71 (1.47)	4.49 (1.54)	4.63 (1.21)	4.20 (1.67)
Cooking Skills Confidence	0.62	65.56 (15.77)	66.81 (15.31)	68.00 (12.53)	63.92 (15.03)
Food Skills Confidence	0.05	88.64 (20.92)	82.13 (19.78)	88.80 (17.72)	77.72 (21.45)

556 *Cooking skills confidence range: 30-97; Food skills confidence range: 14-124.*

557 **Table 3 – Unadjusted bivariate correlations between predictor variables and intention to cook from scratch again**

Variable	Confidence	Enjoyment	Difficulty
1. Confidence	-	0.42**	-0.27**
2. Enjoyment	-	-	-0.19*
3. Difficulty	-	-	-
4. Intention to cook again	0.38**	0.50**	-0.26**
M	5.78	5.54	3.16
SD	1.17	1.18	1.52

558 *Significant at 0.05 level

559 **Significant at 0.01 level

560 **Table 4 – Hierarchical multiple regression predicting intention to cook from scratch again**

Variables	Model 1		Model 2		Model 3	
	B (SE)	β	B (SE)	β	B (SE)	β
Intention to cook from scratch again at start	.455 (.062)	.535***	.417 (.074)	.491***	.351 (.072)	.413***
Confidence at start			-.152 (.092)	-.153	-.196 (.092)	-.197*
Enjoyment at start			.287 (.091)	.272**	.178 (.090)	.169*
Difficulty at start			-.007 (.086)	-.007	-.035 (.084)	-.032
Confidence at end					.263 (.100)	.208**
Enjoyment at end					.292 (.102)	.233**
Difficulty at end					-.010 (.074)	-.010
F	54.007***		16.773***		14.854***	
Adjusted R²	.28***		.32*		.42***	

561 * P<0.05, ** P<0.01, *** P<0.001.

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