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1 Background & Aim

Global food consumption is a critical yet modifiable contributor to the poor health of individuals, populations and our planet.

Consumption of a diverse range of minimally processed plant-based foods and moderate intake of animal-based foods are key attributes of an environmentally sustainable and healthy diet.¹

A digital behaviour change intervention may present a cost-effective and scalable method for promoting sustainable healthy diets (SHD).

The aim of this study was to develop a video-based educational intervention to promote SHD among Newcastle University students.

2 Methods

Development of the intervention was guided by:

- The behaviour change wheel.²
- The Medical Research Council's framework for complex intervention development.³
- The person-based approach to intervention development.⁴

Literature review

Existing evidence from systematic reviews and established theoretical models were identified and informed the design of the intervention.

Primary mixed-methods research

A sample of ~10% of the Newcastle University student population ($n=2133$) was surveyed.

The sample represented students from all faculties and stage groups.

The aim was to investigate facilitators and barriers to adopting a SHD and assess current dietary patterns.

Several questions were modelled on theory (COM-B model,² theoretical domains framework⁵ & trans-theoretical model of behaviour change (TTM))⁶ to allow for quantitative behavioural analysis.

Five open-ended questions prompted qualitative responses which were analysed using Braun and Clarke's⁷ method for thematic analysis.

Review findings and behavioural analysis results informed the design of the intervention's guiding principles and programme theory.

3 Results

Literature review

Tailoring content, integrating theoretical models and involving stakeholders are common features of effective digital interventions.⁸⁻¹¹ In addition to theories already mentioned, social cognitive theory,¹² self-determination theory¹³ and theory of planned behaviour¹⁴ were integrated into the intervention design. Evidence suggests that 'goal setting', 'social support', 'demonstration' and 'credible source' are behaviour change techniques (BCT)¹⁵ that have proven effective in similar interventions.^{8-11,16} Evidence-based methods for effective video education were identified and include video modelling with real people, gain-frame messaging and segmenting content into short videos.¹⁷⁻¹⁹

Primary mixed-methods analysis

Current dietary patterns

65% of students reported eating three portions of fruits & vegetables or fewer per day, only 18% reported eating at least five. The most frequently consumed protein sources as reported by students (and % of cohort consuming daily) were dairy (47%), poultry (17%), eggs (17%), nuts & seeds (11%) and legumes (10%).

Facilitators to adopting SHD

52% of students were already contemplating or preparing to eat a SHD (Fig. 1). TTM⁶ predicts that with the right support these students will change their behaviour within six months.

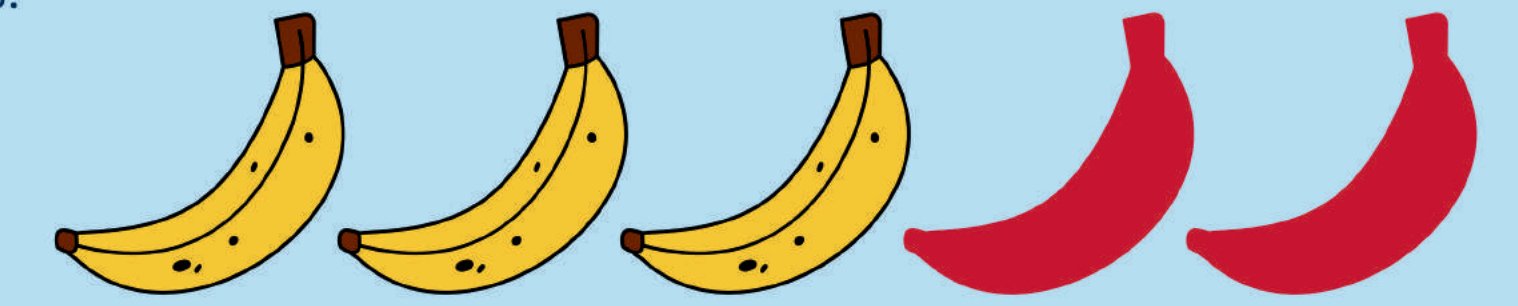
58% of students were optimistic about overcoming challenges involved with eating a SHD and 69% reported feeling happier when they eat a SHD. Thematic analysis highlighted ethical, social and cultural influences as facilitators.

Additionally, students voted 'the gut microbiome' and 'high protein diets' as popular topics of interest.

Barriers to adopting SHD

Financial constraint was the most prominent barrier identified. Others included limited knowledge, lack of belief about consequences and lack of time (or lack of the skills required to reduce cook/preparation time).

The reviewed evidence and the identified theoretical behavioural domains informed the selection of theoretical models, intervention functions and BCT to be integrated into the guiding principles and programme theory.



Intention to adopt sustainable healthy diets

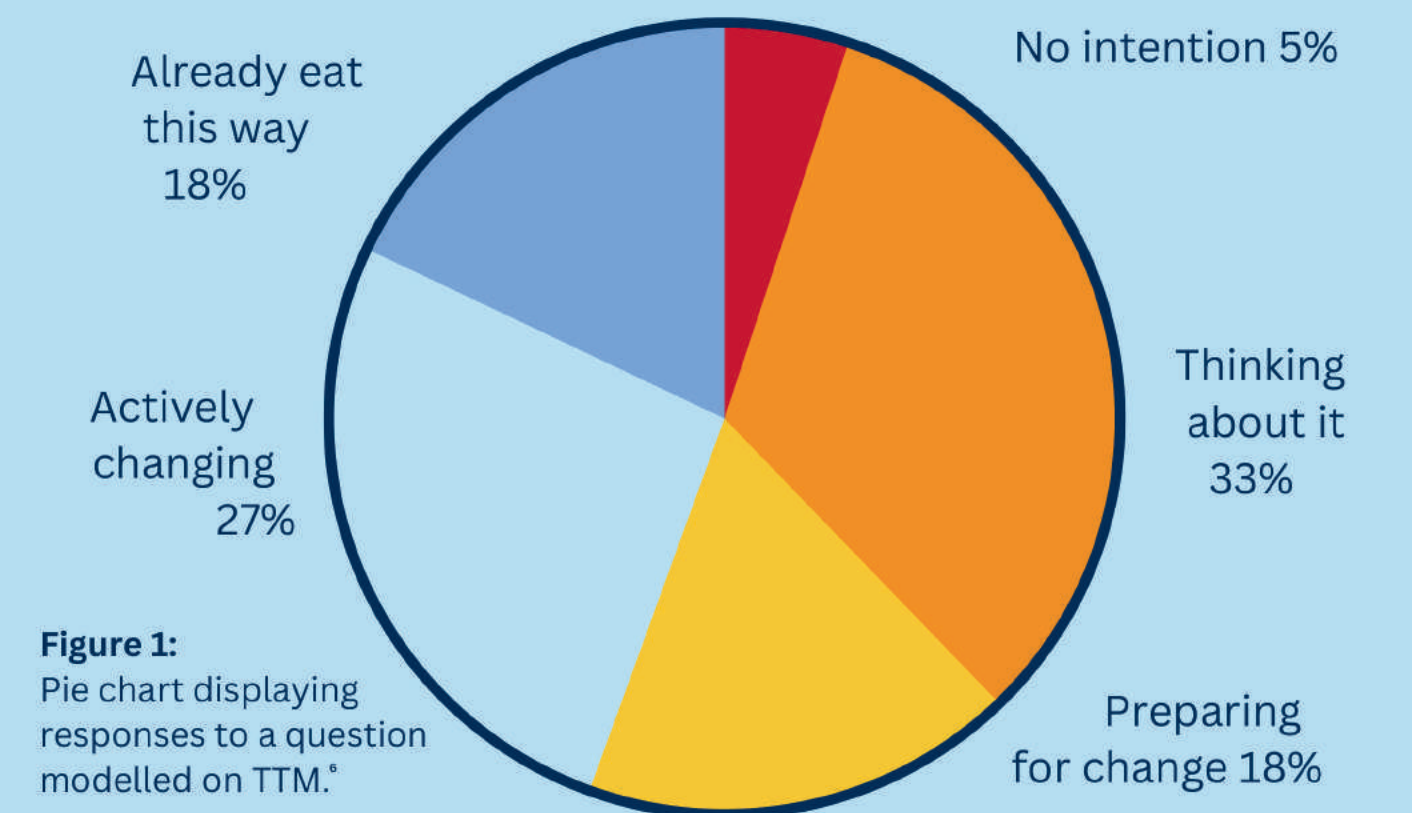


Figure 1: Pie chart displaying responses to a question modelled on TTM.⁶

Guiding principles

Guiding principles were developed with strategies for implementation. The principle objectives are:

- Empower students with the knowledge and skills required to adopt SHD and maintain them long-term.
- Cultivate optimism, intention and positive emotion around SHD.
- Tailor content to be contextually relevant, relatable, authentic and engaging.
- Instigate social change and instil sustainable healthy eating as a social norm.
- Ensure the design facilitates cost-effective and scalable implementation that is easily accessible.

Programme theory

Programme theory was developed to articulate how the intervention will work. The logic model (Fig. 2) shows the core features.

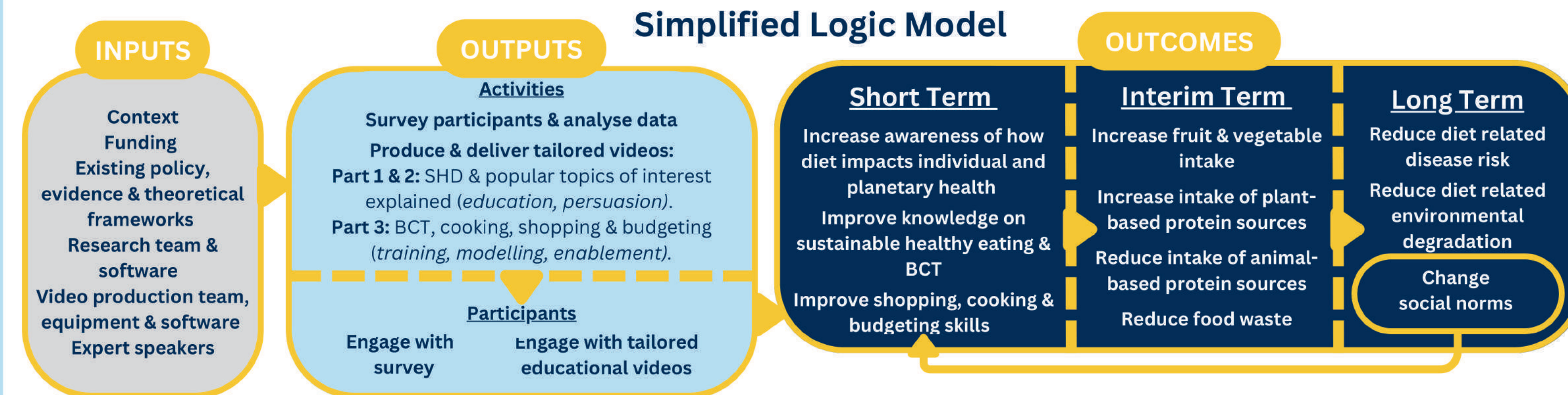


Figure 2: Simplified version of logic model illustrating core aspects of programme theory.



Figure 3: Experts featuring in educational content. Dr. Wouter Peeters, Kaitlin Colucci RD and Prof. Bernard Corfe (left to right).

4 What's next?

A pilot series of videos is being produced (Fig. 3) and students ($n=1334$) have been recruited to participate in a feasibility trial.

Next is the evaluation phase. This may involve follow-up surveys, focus-groups and interviews with participants and consultations with experts.

The intervention design can then be refined and optimised before potential large scale implementation.

Scan the QR code for references, acknowledgements & contact info.

I'd love to stay in touch! 😊

