Institute *for the* Future of Work

Working Paper

Channelling Motivation

Can optimism and motivation be developed through a self-reflective intervention? A multi-part intervention trial

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February 2026

Produced in partnership with

EY Foundation

Contents

Citation

Geisler, J., Nash, O., Halstead, J., Moffat, R., *Channelling Motivation: Can optimism and motivation be developed through a self-reflective intervention? A multi-part intervention trial.* London: Institute for the Future of Work.
DOI: 10.5281/zenodo.18268997

Abstract

Background: Young people from low-income backgrounds often face barriers to work and learning, which - when combined with narratives about the impacts of automation and artificial intelligence (AI) on the labour market - may contribute to feelings of uncertainty about their future of work. Building on self-determination theory (SDT), this research focuses on intrinsic motivation (doing things because they are enjoyable) and internal motivation (doing things because they fit one's values and identity) as foundations for good work and career development.

Aims: This working paper reports early findings from a brief, theory-based intervention designed to strengthen optimism, motivation and perceived human-centric skills among young people taking part in EY Foundation employability skills and work experience programmes.

Sample: Participants were sixth-form and college students from low-income backgrounds enrolled on EY Foundation's Smart Futures employability skills and work experience programmes (N = 107). Seventy-six young people received the intervention and 31 formed a comparison group based on convenience sampling.

Methods: We delivered, via a 'train-the-trainer' model, a 60-minute three-part session within the programme. The intervention combined: (1) a short growth mindset segment, (2) a motivation mapping exercise linking activities that participants enjoy to possible work and learning routes, and (3) a structured values reflection task. Using a post-programme survey with retrospective self-ratings, we compared retrospective self-assessed change between the intervention and comparison groups, and analysed qualitative reflections from 45 participants.

Results: Participants in the intervention group reported up to 35% larger average self-assessed improvements across motivation-related items than the comparison group, though these differences were not statistically significant. Statistically significant differences were observed in professional communication skills through four measures: talking to new people, teamwork, sharing ideas in a business environment, and interview technique. Written reflections were largely positive, describing gains in confidence, clearer priorities, and a stronger sense that meaningful work could be attainable. However, the small, non-randomised sample and reliance on self-reporting mean the findings should be treated as provisional.

Discussion: Short, structured, reflective sessions of this kind could be a feasible and accepted addition to careers and employability programmes for young people from low-income backgrounds, and merit testing at greater scale through rigorous experimental designs within statutory careers education.

Keywords: Intrinsic motivation, school-to-work transitions, careers education, capabilities, multi-part intervention trial

1. Introduction

Supporting young people from low-income backgrounds through successful transitions from education into employment remains a persistent policy and practice challenge (Office for National Statistics, 2026). Careers education and employment support play a crucial role shaping young people's pathways into work, particularly in the context of heightened uncertainty about the future of work with reductions in entry-level hiring (Klein Teeselink, 2025; DSIT, 2026; Masud, 2026). The goal of this study is to address a knowledge gap around how motivation interventions, typically applied to increase educational attainment, can support young people's transitions into good work through career education.

This working paper is situated in the field of motivation (e.g. Peters, 2015), and draws particularly on Self-Determination Theory (SDT) (Deci and Ryan, 1985; Richard M. Ryan and Deci, 2000). SDT distinguishes between intrinsic motivation (engaging in activities for inherent enjoyment) and internalised motivation (engaging in activities because they align with one's values and identity). These forms of motivation are associated with enhanced wellbeing, persistence, learning, academic achievement, communication, creativity and adaptive functioning (Richard M. Ryan and Deci, 2000; Reeve and Cheon, 2021a). Young people from low-income backgrounds on average report lower levels of intrinsic and internal motivation than their more affluent peers in education (Manganelli et al., 2021a), and rarely connect these to their career aspirations (Halstead et al., 2025), limiting their ability to translate motivations into pathways towards meaningful work.

At the same time, labour market transformation has increased the value of capabilities that are difficult to automate (Rui Costa et al., 2024). Task-based accounts of technological change distinguish between routine tasks, which follow codifiable procedures and are therefore susceptible to automation, and non-routine tasks, which require problem-solving, complex communication, judgment, and adaptability, and are therefore more resilient to technological change (Autor, Levy and Murnane, 2003). Drawing from this framework, "human-centric skills" are here understood as the capabilities that support effective performance in non-routine contexts. These include critical thinking, communication, collaboration, and adaptability, whose development stronger motivation supports (Rui Costa et al., 2024).

Taken together, this makes intrinsic and internal motivation increasingly salient in a technologising labour market. A substantial body of research demonstrates that motivation can be shaped through relatively brief psychological interventions, including value-affirmation and utility-value approaches (Lazowski and Hulleman, 2015a). However, most of this evidence measures the impact on motivation levels or educational achievement (Lazowski and Hulleman, 2015a; Wang et al., 2024). Less is known about whether short, replicable interventions can cultivate intrinsic and internal motivation within careers education and employability support programmes, particularly for young people from low-income backgrounds. Furthermore, there is limited empirical work examining whether such interventions are associated with shifts in human-centric skills.

This study addresses this gap by examining the implementation and early outcomes of a brief, theory-informed intervention designed to strengthen intrinsic and internal forms of motivation in an employability context. The intervention integrates elements of growth mindsets (Dweck, 2006), intrinsic motivation, and values reflection, in a single session within

the EY Foundation's (EYF) employability programmes. Using survey data from 107 participants, alongside qualitative reflections, we examine whether such an intervention is associated with changes in motivation, its application to career planning, and perceived human-centric skills. In doing so, this working paper seeks to contribute empirically to motivation literature, and to inform the design of replicable career support interventions in a rapidly transforming labour market.

2. Theoretical background

2.1 The Capabilities Approach

As new technologies such as artificial intelligence (AI) rapidly transform workplaces, there is an urgent need to steer it towards greater opportunity, not deeper inequality. There is a similarly urgent need to better understand how transitions – from school into training and work, or between different jobs – can be improved, and people better supported to navigate these moments of change.

As evidenced in the Pissarides Review hosted by the Institute for the Future of Work (IFOW), better provision of technical skills and 'AI literacy' alone will not be enough for young people from low-income backgrounds to negotiate these transitions in this period of rapid technological change (Liu et al., 2024; Rui Costa et al., 2024). What will be needed will be an integrated 'Capabilities Approach'.

Developed by Sen and Nussbaum, in the Pissarides Review (IFOW, 2025) this work was applied to the current context of changes to work under rapid technological transformation, and how people can 'live a life that they value' through periods of transition. Each person will have different personal, social, and environmental factors that will influence their ability to convert training opportunities or careers guidance into realised achievements (Halstead et al., 2025).

This means that policies and practices designed to improve outcomes requires an integrated approach, one that both addresses the external factors within which young people experience guidance and training, and the internal factors that accompany these. Together, this accounts for their differing abilities to 'convert' these inputs into genuine opportunities. An individual's motivation is an important internal conversion factor.

2.2 Motivation

The word 'motivation' comes from the Latin verb 'movere', meaning 'to move or set in motion'; it is this capacity for initiating movement that is the central characteristic of motivation. This research is underpinned by a school of motivational research known as Self Determination Theory (SDT), (Richard M Ryan and Deci, 2000), which categorises motivation on a spectrum with two forms of motivation relevant for this study: intrinsic and internal motivation. Together, we refer to them as 'internal forms of motivation'.

Intrinsic motivation is defined here as the drive to engage in an activity because it is inherently enjoyable or satisfying (Richard M Ryan and Deci, 2000). When we are motivated intrinsically, our actions are not driven by any desire for personal gain, or by any external factor.

Internal motivation is a composite of two categories - identified regulation and integrated regulation (Richard M Ryan and Deci, 2000). Identified regulation involves being motivated because the project or pursuit is something we see as important, whereas integrated regulation involves being motivated because the project or pursuit has become part of ourselves (Ryan and Deci, 2020). As such, 'internal' motivation involves doing things because they are important to us (they align with our values) or part of us (they align with our identity).

SDT theory identifies three basic psychological needs – autonomy, competence, and relatedness – as essential for developing and sustaining intrinsic and internalised motivation

(Ryan and Deci, 2020). Relatedness refers to the quality of our human relationships, competence refers to the opportunity to be and feel effective, and autonomy refers to the opportunity to act without coercion or constraint (Ryan and Deci, 2020). If these three needs are met, individuals have the ability to develop positive intrinsic and internal motivation.

3. Literature

3.1 Internal forms of motivation and life outcomes

The development of intrinsic and internal forms of motivation is important for a range of reasons.

First, internal forms of motivation have been consistently linked to a range of positive outcomes including, but not limited to, improvements in physical health, academic performance, psychological health, job performance, creativity, pro-social behaviour, persistence, and meaning in life (Richard M Ryan and Deci, 2000; Van Den Broeck et al., 2021; Ryan et al., 2023). That is, the development of intrinsic and internal forms of motivation is a route to human flourishing (Martela, 2023).

Second, as part of the Pissarides Review, IFOW found that, between 2016 and 2022, the strongest and most consistently demanded skills were human-centric (sometimes described as 'essential' skills) (R Costa et al., 2024; IFOW, 2025). These skills include initiative, communication, leadership, critical thinking, and problem-solving. Intrinsic and internal forms of motivation have been strongly linked to the development of these skills, particularly initiative, critical thinking and problem-solving (Richard M Ryan and Deci, 2000; Fischer, Malycha and Schafmann, 2019).

Third, motivation is particularly important for young people, who, as a natural consequence of time, often lack experience; thus, motivation acts as an important signal of employability (Woolley and Fishbach, 2018).

3.2 Internalised motivation and socio-economic disadvantage

Large-scale empirical studies have shown that young people from low-income backgrounds are more likely to experience a lack of motivation, and less likely to report intrinsic or internal forms of motivation (Manganelli et al., 2021b). Low socio-economic status (SES) is also associated with less reported enjoyment of school (DfE, 2025), and a weaker sense of control over one's future (Office for National Statistics, 2023).

This can be explained by the fact that being from a low-income background tends to narrow the opportunities to develop motivation through weaker parental, peer, and institutional support (Tompkins, 2022; Holster, 2023). Low-income backgrounds can limit autonomy by restricting real choice and agency in decision-making (Manganelli et al., 2021b). It may also undermine competence, particularly through reduced access to academic or extracurricular activities (Cullen Mairi Ann, Lindsay Geoff, and Dockrell Julie E, 2009; Donnelly, Lažetić and Sandoval-Hernandez, 2019). Lastly, it can affect relatedness, such as through strained relationships with teachers (Perinetti Casoni and Barg, 2026). Therefore, young people from low-income backgrounds tend to have fewer opportunities to develop motivation, and subsequent human-centric skills, putting them at a greater disadvantage in today's labour market.

Previous research by IFOW showed that young people from low-income backgrounds demonstrate and articulate intrinsic and internal forms of motivation related to a wider range of topics, but rarely in relation to school or work (Halstead et al., 2025). The findings from our study also surfaced pessimism among young people from low-income backgrounds towards the economy and local 'opportunity structures' (Bernard and Keim-Klärner, 2023; Bernard et al., 2023), often expressed towards or in relation to the government, technological change, inequality, and their local area – including their intersections (Halstead et al., 2025).

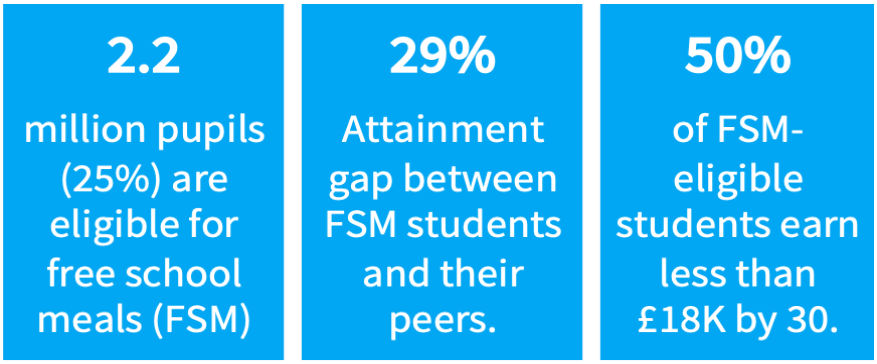

Figure 1: FSM-eligible attainment gap figures based on ONS analysis

3.3 Malleability of intrinsic and internal motivation

Intrinsic and internalised motivation are considered highly malleable, shaped by the social and environmental context in which an individual operates (Richard M Ryan and Deci, 2000). Rather than being fixed traits, these forms of motivation can be cultivated or undermined depending on whether basic psychological needs – autonomy, competence, and relatedness – are supported. For example, when individuals perceive choice (autonomy), experience mastery (competence), and feel socially connected (relatedness), they are more likely to develop intrinsic interest or fully integrate external goals into their sense of self. This helps explain the differential motivation of young people by SES but also manifests itself positively in the effectiveness of motivation interventions.

3.4 Interventions to develop intrinsic and internal motivation

3.4.1 Interventions in social science

An intervention can be broadly defined as a manipulation implemented by an external agent, with the intention of bringing about some form of change (Lazowski and Hulleman, 2015b). That is, the process of intervention involves the introduction of something additional, from the outside, beyond the normal order of things, and often for a limited period of time (Wu, Spreckelsen and Cohen, 2021).

We can segment interventions by the subject of their focus, with some focusing more on internal changes, such as changes to participant states, beliefs or desires, and some focusing more on external changes, such as behaviours or outcomes. Studies have shown that, in general, the most effective interventions tend to be:

i) **high contact,** involving several hundred hours or several months of support;

ii) **multi-component,** combining a range of intervention elements into one program;

iii) **natural**, that is, presented as part of 'the normal order of things'; and,

iv) **carried out in well-resourced environments** (Lazowski and Hulleman, 2015; Mawn et al., 2017; Wu, Spreckelsen and Cohen, 2021).

3.4.2 Motivation interventions

Motivation interventions draw from a wide variety of theoretical schools. A common approach is some form of self-reflection, internalisation, or personalisation, i.e., a process of uncovering, connecting with, and linking to what matters to the individual (Lazowski and Hulleman, 2015b; Knittle et al., 2018). These tend to be integrated into an activity, e.g. thinking about how an assignment is important for one's life (Hulleman et al., 2010). In terms of effectiveness, there is evidence that multi-component interventions are the most effective (Lazowski and Hulleman, 2015b), echoing literature from NEET interventions (Mawn et al., 2017).

There is evidence that interventions targeting motivation for an activity can be effective both in terms of increasing motivation (Knittle et al., 2018; Triebner et al., 2024; Spitzer et al., 2025) and other measurable outcomes, such as stress reduction, academic performance, more constructive classroom behaviours, healthier beliefs, and behaviour change (Lazowski and Hulleman, 2015b; Knittle et al., 2018; Triebner et al., 2024; Spitzer et al., 2025). A meta-analysis by Lazowski and Hulleman (2015) also showed motivation interventions to be cost-effective. Comparing them directly to approaches involving broader school reform, the average effect size on performance indicators was 0.52 with motivation interventions, compared to an average effect size of 0.11 of costly and resource-intensive whole-school reform models (Lazowski and Hulleman, 2015b).

There is considerable research on how intrinsic and internal motivation can be encouraged (Richard M Ryan and Deci, 2000; Orsini et al., 2016; Triebner et al., 2024). For example, one experiment integrated team-building, positive feedback, and choice over tasks to increase intrinsic motivation and reduce stress (Triebner et al., 2024). Another study using motivational interviewing techniques saw increased intrinsic motivation and internal motivation (Spitzer et al., 2025).

It is worth noting that the bulk of research in this area either i) uses single component interventions or ii) is focused on the supporting conditions for motivation, and iii) generally focuses on one outcome variable – either motivation or another outcome (e.g. educational attainment) – instead of different variables. Point i) is relevant due to the potential of combining interventions to create what one meta-analysis calls “supercharged” interventions (Lazowski and Hulleman, 2015b).

3.4.3 Value affirmation interventions

Values affirmation interventions are a form of self-affirmation intervention that aims to foster internal security within the participants and produce positive outcomes such as improved educational attainment (Wu, Spreckelsen and Cohen, 2021). The benefit of value affirmation is from timing it in advance of important events that threaten self-concept (e.g. an important test). Value affirmation interventions often take the form of a short reflective writing exercise in which participants reflect on the things important to them. Measured in terms of academic achievement, these interventions have been shown to have a disproportionately positive effect for marginalised students (Wu, Spreckelsen and Cohen, 2021).

Figure 2 below provides an overview of some of the key characteristics of interventions designed to support internal motivation based on the literature.

Figure 2: Intrinsic and internal motivation interventions: characteristics and principles

3.4.3 Short-form mindset interventions

While longer-term interventions are generally more effective, 'short-form' interventions such as the 'Growth Mindset' (Dweck, 2006) interventions show positive effects in educational settings, including attainment (e.g. Burnette et al., 2023). The most significant study in this field included 12,490 high school students in the U.S. who were randomly allocated to completing an online growth mindset module teaching that "intellectual abilities can be developed" (Yeager et al., 2019). The study showed an increase in grades, including in mathematics, particularly where supportive peer norms were strong. Results from other studies have also shown improved academic achievement and motivation amongst participants (Blackwell, Trzesniewski and Dweck, 2007; IES, 2025; Janssen and van Atteveldt, 2025) and youth socio-emotional outcomes (e.g. Jiang, Mueller and Paley, 2024).

Recent systematic reviews and meta-analyses of growth mindset interventions have found small positive effect sizes (d=0.09) for academic achievement overall, with stronger effect sizes for high-fidelity interventions delivered to groups expected to benefit most from the intervention (d = 0.14) (Burnette et al., 2023). However, some authors have noted inadequate study design and bias (Macnamara and Burgoyne, 2023). It is notable for instance that the well-powered 'Changing Mindsets' trial in the UK, which included 5018 pupils across 101 schools, did not find any statistically significant additional progress in literacy or numeracy, though this could have been attributable to the existing awareness amongst educators of this theory (Rienzo, Rolfe and Wilkinson, 2015; Foliano et al., 2019).

Whilst the precise effect sizes of mindset interventions remain uncertain given these mixed results, even with relatively small effect sizes on academic achievement, it makes them cost-effective due to their low cost and the rigidity of academic achievement as an outcome (Burnette et al., 2023).

4. Aim and research questions

The literature suggests that the development of intrinsic and internal forms of motivation is key for a happy, healthy and productive life. These forms of motivation have become increasingly important due to technological change, particularly in the context of young people transitioning into work. However, young people from low-income backgrounds, who already face barriers to enter the labour market, are less likely to develop these forms of motivation in relation to their career.

Research generally supports the effectiveness and cost-effectiveness of interventions designed to influence internal states and details the characteristics of effective interventions. Much of this research measures the effect of motivation interventions on one type of variable, namely either motivation, educational attainment or wellbeing. In addition, there is comparatively little research on synergistically designed multi-component interventions designed to cultivate intrinsic and internal forms of motivation and of interventions in relation to a career development context.

This study addresses this research gap on how motivation and the perception of human-centric skills could be strengthened and channelled in young people from low-income backgrounds, supporting their transition from education to employment. This gap will be addressed through three research questions guiding this study:

The research questions for the study are as follows:

Research Question 1

Is participation in the intervention associated with self-reported changes in intrinsic and internal motivation?

Research Question 2

Is participation in the intervention associated with self-reported changes in human-centric skills?

Research Question 3

How do young people perceive the intervention in terms of its usefulness and internal changes it may have provoked or supported?

5. Intervention design

5.1 Intervention

This section outlines the short-form multi-part 'Channelling Motivation' intervention developed as part of this study, designed to cultivate intrinsic and internal forms of motivation in young people from low-income backgrounds. It was delivered to students aged 17-18 on the summer break between Year 12 and 13.

5.2 Theory of change

The intervention aims to integrate intrinsic and internal motivation into young people's career development through three sub-goals and parts laid out in our theory of change: i) building self-belief through a session on neuroplasticity (growth mindset), ii) surfacing young people's intrinsic motivation, and iii) surfacing their values. Further detail on this can be found in the Annex. While these all draw from separate peer-reviewed papers and experiments, they have been designed to be complementary, as outlined in the Channelling Motivation Theory of Change (figure 3).

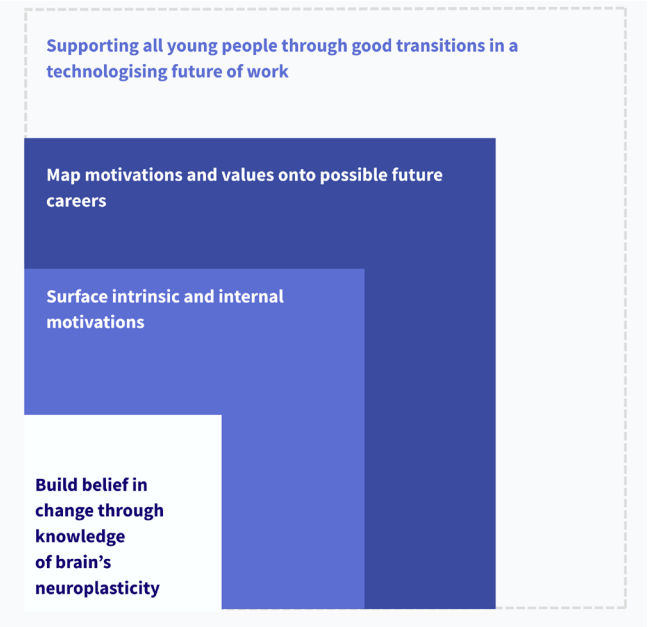

Figure 3: Theory of change of the Channelling Motivation Intervention

5.3 Intervention pilot structure

Participants in the treatment group were guided through a 60-minute, three-part intervention, which consisted of:

- A Growth Mindset teaching and reflection exercise, which aimed to 'prime' the participants for the subsequent parts of the intervention by fostering belief in their own abilities to grow and improve.
- A 'Motivation Mapping' exercise, designed to help participants channel and cultivate intrinsic motivation.
- A Values Reflection exercise, designed to help participants channel and cultivate internal motivation.

5.4 Intervention delivery

The intervention was delivered by EY Foundation's programmes team, responsible for delivery of its own programmes, as well as other educational, careers and youth-engagement programmes run by the foundation with schools, colleges, and other partner organisations. As such, the facilitators delivering the session are experienced working with young people.

A 'train-the-trainer' (TTT) (e.g. Orfaly et al., 2005) approach was adopted for the intervention delivery. This is a widely recognised educational model across a number of different contexts, including the delivery of after-school programmes (e.g. Gustin, Reiboldt and Carson, 2016), youth community health interventions (e.g. Nakamura et al., 2014), and workforce readiness programmes focused on young people (e.g. Fields et al., 2012).

Prior to the delivery of the intervention, the facilitators were provided with the session materials, including the workshop booklet, a session plan, and background information on autonomy-supportive teaching (e.g. Reeve and Cheon, 2021b) principles that were relevant to the delivery of the intervention. Along with this information, a 90-minute webinar training session with the facilitators was arranged to provide an overview of the material and answer any clarifying questions.

6. Methodology

6.1 Sample

Both the treatment and comparator groups received eight days of comprehensive professional skills training and experiences as part of the EY Foundation's 'Smart Futures' employability programmes. The programme involves a paid work experience placement, employability skills training, team-building activities, and mentorship, and applicants choose a sectoral focus (e.g finance).

The intervention was also delivered to participants in 'EY Ready', a one-day programme preparing young people for the EY application process if they have previously completed Smart Futures. However, no data was collected from that cohort given its short format.

For the study trial, groups were assigned to the intervention based on a convenience sampling approach (e.g. Golzar, Noor and Tajik, 2022). The non-randomised intervention and comparator groups included 76 and 31 participants respectively, only including those for whom survey data was collected. The Channelling Motivation intervention was embedded within a one-hour slot on the second day of the eight-day programme.

6.2 Design of the study

The inclusion of this activity within a eight days of training and experiences – as one hour out of 25+ hours of related activity – reduced the risk of results being influenced by any form of 'attention effect', that is, by participants simply receiving extra time and attention from adults or mentors (Aycock et al., 2018). The comparator group either took part in other professional skills modules or were given additional time for private study and consolidation. In this sense, embedding the intervention as a small part of a wider programme of activities approximates an 'attention-control group'.

Concerns about spillovers from participants in treatment to the comparator group are low because the intervention was presented as part of 'the normal order of things' and took place in different regions of the country. As such, participants in either the intervention or comparator group were unlikely to be aware that they had received different content to others.

6.3 Survey instrument

To estimate whether participants in the intervention reported increases in their internal forms of motivation, specific survey questions were added to EYF's programme post-completion survey. These covered participants' general motivation, their motivation towards learning at school, mindset towards finding a satisfying job in the future, self-belief in securing a values-aligned job, a question about their belief in a growth mindset, and alignment with the sector of participants' work placement. As EYF's survey already included questions that operationalise a significant breadth of human-centric skills that the programme aims to foster, no additional questions were designed for RQ2. All responses were given on a 5-point Likert scale. For further detail on the questions, please refer to the Appendix.

The survey was completed by 107 young people participating in the EYF's Smart Futures and between July and September of 2025, regardless of whether they participated in the Channelling Motivation intervention (i.e. both the treatment and comparator group). This enabled studying whether the intervention was associated with higher self-assessed

improvements in several motivational measures. As the intervention was trialled non-randomly, results indicate self-assessed improvement rather than a causal impact (Waddington, Villar and Valentine, 2023). The small sample size necessitates that results are interpreted nationally, rather than by region. Lastly, the structure of EYF's programmes as short-form programmes means that they only conduct a post-survey, which asks participants to estimate their self-assessed changes across a range of skills, confidence, and beliefs.

6.4 Semi-structured interviews and participant observation

While the survey gives an indication of whether participants increased their self-assessed approaches to motivation, qualitative insight into participants' engagement with the Channelling Motivation intervention was crucial to understand how participants engaged with it, and why they did, or did not, find the intervention helpful.

Qualitative data were collected by IFOW researchers. This feedback was gathered through two channels: verbal responses observed and recorded after intervention sessions, and written reflections submitted to intervention instructors following informal requests for participant impressions. Of the 76 individuals assigned to the treatment group, 45 voluntarily provided feedback on their experience of the intervention. Note that this may have resulted in bias in these responses, where participants with more critical views may not have provided their reflections.

6.5 Analytical procedure

6.5.1 Quantitative analytical procedure

To assess experiences of the intervention and whether they were associated with improvements on relevant motivation measures, we employed a difference-in-means approach comparing self-assessed improvement across treatment and comparator groups. For each respondent, a change score was measured as their retrospective assessment of improvement in their belief or skill since starting the programme. Group-level means of self-assessed improvements were then compared using a t-test of means to assert whether the differences are statistically significant. This was done across all survey questions, to understand both changes in motivation (RQ1) and human-centric skills (RQ2) (see Appendix).

6.5.2 Qualitative data analysis

Written reflections from 45 participants in the Channelling Motivation session were analysed using reflexive thematic analysis (Braun and Clarke, 2006). This followed an inductive coding approach, involving the generation of thematic codes to identify recurring patterns and themes (Braun and Clarke, 2006).

The analysis involved grouping qualitative data into positive and negative sentiments and into broader themes. Parent categories were created that included perceived novelty of the session, perceived internal change supported by the session (for example, in motivation or clarity), and critical or improvement-oriented comments about the intervention itself.

7. Results

7.1 Survey data

In relation to research question 1, Figure 4 shows that the treatment group reported a greater average self-assessed improvement in their general motivation (I've been feeling motivated), motivation toward learning (I feel motivated to learn when I return to school), mindset towards finding a satisfying job in the future (I feel positive about getting a satisfying job in the future), and self-belief in securing a values-aligned job (Do you think you can get a job that fits with your values (e.g., helping others, saving nature, making/fixing things)?). Intervention participants did not seem to integrate growth mindset (My intelligence is something about me I can't change very much) into their beliefs (average change is zero), though this is better than the performance of the comparator group, who saw a decrease in their expressed growth mindset.

Average self-reported change between treatment and comparator groups

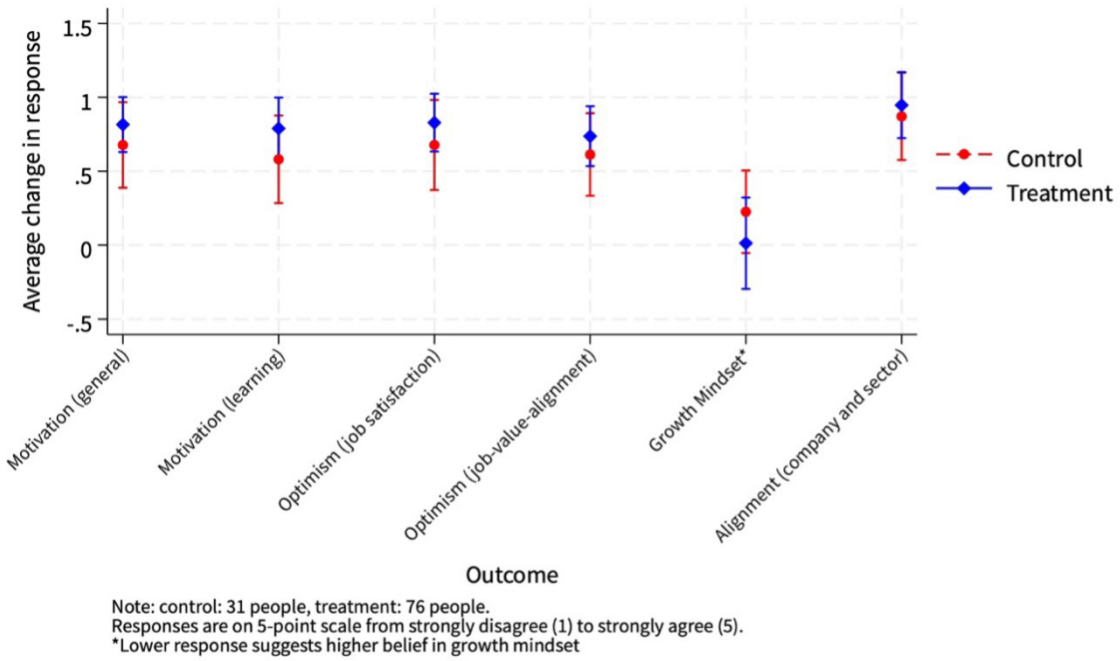

Figure 4: Average self-reported change to selected survey questions

Importantly, Figure 4 shows that the confidence intervals of the means overlap, which implies that, while we observe an average difference in average self-assessed improvements between the treatment and comparator group, we cannot statistically assert that this difference is not due to chance. Therefore, we may see a smaller and even negligible difference in means with a different or larger sample.

That being said, the average difference in self-assessed change is higher in the treatment group than in the comparator group, by 0.1 to 0.2-point differences on a 5-point Likert scale (Figure 5). For all survey questions, participants in the programme reported a higher average improvement in their motivations, optimism, growth mindset, and value-alignment. In particular, the average improvement in the treatment group was reported to be between 20% (job values) to 35% (learning) higher than the comparator group.

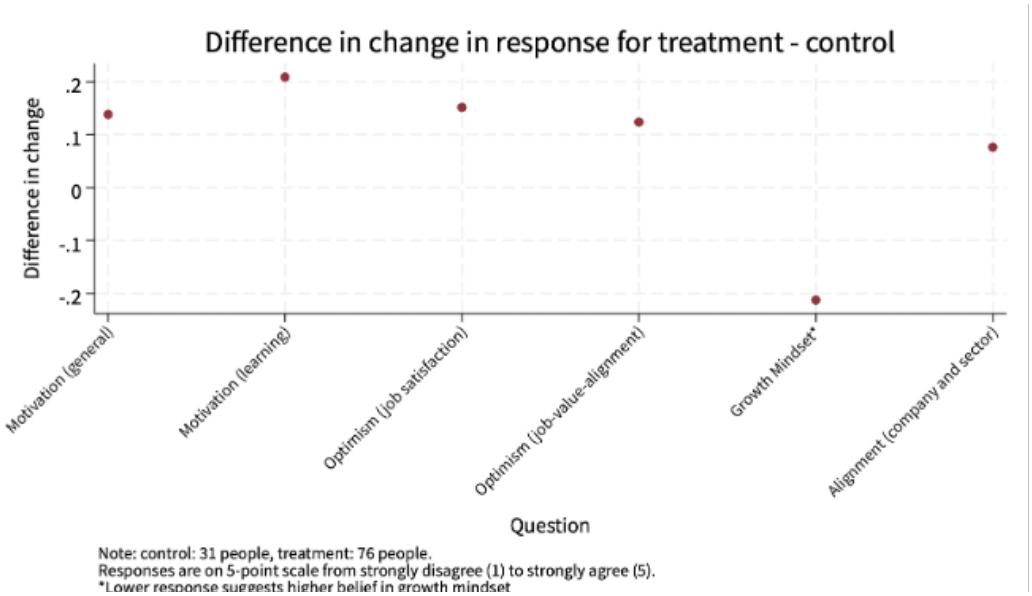

Figure 5. Difference in average change between treatment and comparator group to selected survey questions.

The second research question investigates whether the intervention is associated with a change in human-centric skills. Given the breadth of questions asked to participants, we only focus on the mean differences between treatment and control that are statistically significant (full list of indicators in the Appendix). Of all the survey questions, statistical significance was observed in relation to communication skills, in particular professional communication. The treatment group reported higher self-assessed increases than the comparator group in their ability to speak to new people, perform teamwork, share their ideas in a business environment, and in their interview technique. The statistical significance means that the difference was discernible enough (for example, due to less variation within each group and/or a large enough difference between groups) that this difference is indeed associated with participation in the intervention. While we cannot assert causality from this due to non-randomised design, it indicates that participants in the intervention particularly reported improvements in their ability to communicate in different settings.

Variable	Difference (Treatment - Control)	p-value
Change in Speak to new people	0.526	0.006
Change in Teamwork	0.471	0.002
Change in Sharing ideas	0.361	0.034
Change in Interview technique	0.454	0.015

Table 1. Test of difference in means between treatment and comparator group

7.2 Participant reflections

45 of the 76 participants in the treatment group voluntarily shared feedback on the intervention itself. Valence analysis showed 32 (71%) out of the 45 total comments were 'positive'. The remaining 13 comments consisted of 8 'neutral' comments and 5 that could be classed as 'critical'.

Thematic analysis showed that within these 32 positive comments, the intervention was frequently described as "useful" or "helpful", with these descriptors appearing in four and three comments, respectively. A recurring theme of enhanced self-knowledge was also identified, referenced in three comments.

'Purpose' emerged as another recurring theme, cited in four comments. One participant shared that they had "previously […] only considered finding a job and the paycheque [and] had never thought about whether the job might be enjoyable or whether it would make them happy or what it would be like day to day".

Others highlighted the perceived novelty of the intervention, with 14 out of the 45 total comments noting that this type of activity was new to them. These comments were either positive or neutral in tone. For example, one participant said that "prior to this my school has done a few sessions on character building, but this was the first time we were really pushed to look within ourselves for a motivation".

Perceptions of internal change were also prominent, with 13 out of the 45 total comments suggesting some form of positive personal development or internal change that could be attributed to the intervention. According to one participant, the "self-reflection aspect was really useful and helped me understand myself better" whilst another said the "the values section promoted new career ideas".

A total of two comments were 'critical' in tone. One participant expressed difficulty with the intervention's format, noting it was "hard to narrow down the values [to three] because there are so many". Another participant raised concerns about the appropriateness of sharing answers in a group setting.

8. Discussion

This study investigated the effects of a synergistically designed, multi-component intervention on the levels of motivation and human-centric skills of young people from low-income backgrounds. The intervention was built on three parts: i) growth mindset, ii) intrinsic motivation, and iii) internal motivation, that is, values. The development of the intervention was based on 6-month research and grounded in canonical motivation theories that have been tested empirically in educational settings.

8.1 Research Question 1

Is participation in the intervention associated with self-reported changes in motivation?

This question responds to existing research demonstrating the importance of motivation for wellbeing and other positive life outcomes (Ryan et al., 2023). Based on the survey, we see that the intervention group had an average self-assessed change that was up to 35% larger than the comparator group (on a 5-point Likert scale) when it came to the motivation-related questions. In other words, the treatment groups' average change was better than the comparator on growth mindset, motivation, optimism about a future job, and values.

While we observed relatively large differences between treatment and control for some motivation-related questions, we cannot be confident that this is a non-random difference that would be observable in a different context (for example, with a different sample). For this reason, we cannot assert that the intervention is associated with changes in motivation for participants. Large average differences between the treatment and comparator group without statistical significance might be an indication that the sample size was too small to detect an effect size or that there was significant variation (heterogeneity) between participants in how the intervention linked to their motivation. Further research with a larger or additional cohort is therefore needed. This would ideally be delivered as part of an experiment (i.e. a randomised control trial, or RCT) to discern the causal impact of the intervention on motivation and with a sample large enough to measure heterogeneous treatment effects, which are common in motivation-related interventions (Wu, Spreckelsen and Cohen, 2021).

8.2 Research Question 2

Is participation in the intervention associated with changes in communication-related skills?

Research question two tests the hypothesis that interventions that target motivation, can, by extension, lead to increased human-centric skills that are crucial for transitioning into the labour market (Rui Costa et al., 2024). These human-centric skills range from leadership and initiative to critical thinking. Since these are self-reported scores, individuals rating themselves higher is better understood as an increase in confidence, and likely not as a change in their 'objective' capabilities.

Out of the questions probing participants on human-centric skills, we only observed statistically significant differences in self-assessed communication, namely speaking to new people, sharing ideas in a business environment, interview technique, and teamwork. This is in line with research that suggests that motivation increases human-centric skills. While the

self-assessed measure is a closer indication of confidence than assessed skills, this may help young people articulate their motivation in professional spaces with more confidence about their place in it (Woolley and Fishbach, 2018).

Why do we observe improvements in communication skills in the treated group but not of other human-centric skills, for example, critical thinking (as measured by ability to solve problems, see Appendix A2) and adaptability (ability to adapt & learn, see Appenix A2)? The context in which the intervention was received may offer a clue. Given the focus of EYF's programmes on career development and employability, building communication skills, particularly with potential employers, is a key aim. The intervention was delivered at the beginning of the programme and may have made them more receptive to other modules in the subsequent week.

This draws from research that motivation interventions, while effective in themselves, improve receptivity to other interventions or messaging, for example in health or education (Falk et al., 2015; Harackiewicz and Priniski, 2018; Mishra, Hong and Kotz, 2024), linking to evidence that motivation increases engagement in learning (Deci et al., 1991). This suggests that a motivation-based intervention can amplify the effectiveness of activities as a supportive function, including career development.

8.3 Research Question 3

How do young people perceive the intervention in terms of their reflections on its usefulness and on internal changes it may have provoked?

Participant reflections on the intervention suggest an overwhelmingly positive perception, with some articulating a shift in mindset. With 71% of the comments being positive, there is evidence of a valuable experience for participants regarding the exercise. In relation to the aims of the intervention, the 13 comments that mention some sort of internal change with positive valence indicate that participants felt that the intervention caused, to some extent, a positive change within them. However, given that not all participants filled out the retrospective reflection, it is important to keep in mind the potential of positive bias in responses.

The number of comments which remarked the novelty of the intervention points to a potential career's education lack of embedded reflective practice within careers education programmes. Several participants noted that they had not experienced surfacing their motivations in an educational or career context, despite feeling that it is an extremely important part of making a career choice. This type of reflective exercise might be especially important for young people from low-income backgrounds, who may feel the need to prioritise a well-paying and secure career (Halstead et al., 2025).

Lastly, the few critical reflections centred around the (group) format and intensity of the intervention, not the content itself. This points to avenues for improving how the intervention is designed and delivered, to allow for more time and individual reflection relating to one's motivation. More experimentation is needed to understand the best way to deliver a motivation intervention in group settings to balance both costs, for which these interventions are lauded, and space for individual reflection, the latter relevant given the personal nature of one's motivations.

8.4 Limitations

This study has several caveats relating to the sample, context, and study design.

Firstly, while this intervention was delivered to young people from low-income backgrounds given EYF's programme eligibility requirements, it is a competitive programme with an application process. This likely implies that the average young person participating is more

motivated in relation to their career than their peers who did not apply or perhaps even get into the programme. Therefore, we may expect participants to be more receptive to the content as a baseline. Consequently, we may not see the same result if this was delivered in a non-selective context (i.e. a school or college). The resources available and timing of the intervention (between July and September) meant it was not feasible to deliver this within educational institutions, though it was tested in one college to understand feasibility in that setting.

Another caveat relating to the sample is that the number of participants is relatively small, meaning that most results were not statistically significant, despite large differences in averages. This non-significance of many results should be read with that in mind, as we might observe statistical significance across outcomes in a larger sample. More confidence in the implications could be gained from a larger sample of participants and comparators.

Next, as suggested by findings for RQ2 on professional communication skills, context matters. With the EYF's programmes targeted at employability and career development, we may see different results with regards to human-centric skills if this was delivered, for example, within a personal, social, health and economic education (PSHE) class at a school or college. In other words, the unique context of delivery means that results may not be generalisable.

Lastly, as treatment was allocated by EYF and not randomly – albeit with diversity in terms of location and programme in mind – results do not assert a causal relationship due to potential non-comparability of the treatment and comparator groups. Random allocation was not feasible as the programme is not large enough to randomise effectively at the cluster (group) level. Nevertheless, bias in the estimator from self-selection into the intervention is mitigated by EYF making the decision who would receive the intervention. Future research employing the multi-part intervention should aim to have a large enough sample (based on power calculation) and randomisation to address this shortcoming.

9. Conclusion

This study examined the implementation of a short, synergistic intervention aimed at cultivating intrinsic and internal motivation among young people from low-income backgrounds in an employability and career development context.

Drawing on the principles of Self-Determination Theory (SDT) and informed by a review of motivational frameworks, the intervention sought to strengthen the core psychological drivers identified in SDT: autonomy, competence and relatedness. It did this by combining the idea of growth mindset, a motivation mapping exercise, and values reflection within a single session for selected EYF programme participants. It also examined whether the intervention was associated with any changes in human-centric skills, on which there is little existing empirical research.

The results offer evidence that an intervention combining reflective activities around growth mindset, intrinsic motivation, and values may support young people feel more confident in their human-centric skills, with more research needed on the impact on their motivations and related career options.

Participants in the intervention reported larger average improvements across a range of motivation-related measures than their peers, though differences were not statistically significant. Qualitative reflections by participants were overwhelmingly positive, with the intervention perceived as helpful, novel, and personally meaningful. Reports of increased clarity, confidence, and a sense of an 'internal change' align with theoretical expectations that motivation can be strengthened through reflection and self-connection.

Regarding human-centric skills, statistically significant differences were observed for teamwork, sharing ideas in a business environment, speaking to new people, and interview techniques, all domains closely aligned with the 'human-centric' skills increasingly demanded by employers (e.g. R Costa et al., 2024). Notably, these changes were only observed for communication skills, particularly professional communication skills, pointing to the supporting function motivation interventions, in this case to an employability programme. These findings therefore highlight the potential of brief, reflective interventions to support young people adapt to a changing world of work.

Findings need to be caveated for several reasons. Firstly, a small sample size means that the non-significance of motivation outcomes might not be replicated in a different or larger sample. Next, the specific context, namely that the intervention was delivered as part of a selective programme means that generalisability is not guaranteed, and we are likely to observe different results in a school or college context. Therefore, testing the intervention with a larger sample with the possibility to measure heterogeneous treatment effects, ideally as part of an RCT and in a standard educational context, would give more confidence in and weight to the true effect size of the intervention.

Overall, this study suggests that brief, reflective motivation-focused sessions may represent a useful complement to existing careers education and employability support programmes. While the quantitative evidence for broader motivational change was not statistically significant in this small sample, the positive participant feedback and observed improvements in communication-related skills indicate that such interventions may help young people engage more meaningfully with career development. Embedded within wider provision, short-form approaches of this kind could offer a low-resource way to support progression of young people, particularly those from low-income backgrounds, in their to transition from school into good, meaningful work.

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Appendices

A.1 Survey measures

To measure changes in motivation (motivation), survey participants were asked to respond to the statement 'I've been feeling motivated'. Results were scored on a 5-point Likert scale ranging from 'none of the time' (1) to 'all of the time' (5).

Changes in motivation towards learning (motivation) was measured through participants' responses to the statement 'I feel motivated to learn when I return to school' scored through a 5-point Likert scale ranging from 'none of the time' (1) to 'all of the time' (5).

Mindset towards finding a satisfying job in the future (optimism) was measured through responses to the statement 'I feel positive about getting a satisfying job in the future' on a 5-point Likert scale ranging from 'strongly disagree' (1) to 'strongly agree' (5).

Self-belief in securing a values-aligned job (optimism) was measured through agreement with the statement 'do you think you can get a job that lets you do the things you care about and fits with your values?' on a 5-point Likert scale ranging from 'strongly disagree' (1) to 'strongly agree' (5). This question was designed through measures based on self-determination theory (McLachlan, Spray and Hagger, 2011).

A growth mindset (optimism) was measured through agreement with the statement 'my intelligence is something about me I can't change very much' measured on a 5-point Likert scale ranging from 'strongly disagree' (1) to 'strongly agree' (5). This question was based on a widely adopted question measuring growth mindset and neuroplasticity as seen in the OECD's PISA survey (Gouëdard, 2021).

Alignment to the sector of participants' work placement was measured through agreement with the statement 'working for this company in this sector is something I would have done' measured on a 5-point Likert scale ranging from 'strongly disagree' (1) to 'strongly agree' (5). This question was taken from the Intrinsic Motivation Inventory (IMI) set of questions (Ryan, 1982).

Additional survey questions

The questions above were part of a longer survey including 41 questions related to the EYF programs. These questions focused on a wide range of areas from personal feelings (e.g. 'closeness to others') through to technical skills (e.g. Microsoft Office proficiency).

A.2 T-test of mean differences in self-assessed improvement

Outcome variable (self-assessed change)	Difference (TREATMENT-CONTROL)	p-value
Change in I've been feeling motivated starting programme	-0.138	0.422
Change in Feeling useful	-0.008	0.963
Change in Feeling optimistic	-0.06	0.704
Change in Feeling relaxed	0.042	0.814
Change in Dealing with problems	0.101	0.534
Change in Thinking clearly	0.18	0.239
Change in Feeling close to others	0.168	0.344
Change in Make mind up	0.102	0.478
Change in I feel motivated to learn when I return to school	0.209	0.271
Change in I feel positive about getting a satisfying job	0.152	0.404
Change in Do you think you can get a job that fits your values?	0.124	0.496
Change in Mindset:	-0.213	0.412
Change in Work experience sector	0.076	0.701
Change in Positive about future	0.332	0.068
Change in Career direction	-0.218	0.281
Change in Qualifications confidence	0.001	0.996
Change in Satisfying job	0.306	0.074
Change in Solve problems	-0.132	0.363
Change in Strengths	0.139	0.576
Change in Put forward and exchange ideas	0.225	0.215
Change in Speak to new people	0.526**	0.006
Change in Body language	0.094	0.590
Change in Teamwork	0.471**	0.002
Change in MS Office	0.197	0.258
Change in Presentations	0.13	0.430
Change in Manage time	0.26	0.129
Change in Self confidence	0.173	0.290
Change in Sharing ideas in business environment	0.361*	0.034
Change in Asking for help	-0.011	0.945
Change in Make plan & stick to it	0.217	0.165
Change in Deal with fast change	0.121	0.458
Change in Adapt & learn	-0.027	0.858
Change in CV & applications	-0.172	0.294
Change in Recruitment knowledge	0.379	0.057
Change in Influence & negotiate	0.228	0.120
Change in Interview technique	0.454*	0.015
Change in Productivity	-0.029	0.864

*Note: * p<0.05, ** p<0.01, *** p<0.001*

Acknowledgements

This report has been written and produced by Joana Geisler, Oliver Nash, Joshua Halstead and Robyn Moffat, with additional input from Kester Brewin. This work includes the design and facilitation of the workshops, analysis, writing, and review.

We are grateful to Anna Thomas MBE, Dr Abigail Gilbert, Dr Magdalena Soffia, and Phoebe Griffiths at the Institute for the Future of Work for their insightful feedback, rigorous review, and ongoing support throughout the development of this report. We want to thank the EY Foundation, in particular Sara Belhay and Ewan Bennie, for invaluable support throughout the project so far, including for this report. We are also grateful to the many stakeholders across the education policy and skills space who have provided feedback to help sharpen this work.

Most of all, we extend sincere gratitude to the education professionals and young people who so generously gave their time to participate in this research. Without your honest reflections, openness, thoughtfulness, and willingness to engage in meaningful conversations, this report would not have been possible. We hope this report will feed into improving the lives and opportunities of young people across the UK.

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Citation

Geisler, J., Nash, O., Halstead, J., Moffat, R., *Channelling Motivation: Can optimism and motivation be developed through a self-reflective intervention? A multi-part intervention trial.* London: Institute for the Future of Work.
DOI: 10.5281/zenodo.18268997

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