WILD For Meta Skills

Evaluation report (July 2022)

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- Moving towards a smarter education eco-system
- Using our influence to shape real change
- Promoting the idea that potential is personal.

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WILD Learning exists to help people increase their Learning Power and develop the self-leadership to thrive in our complex and ever-changing world. Talk to us about our scientifically robust, research-validated, self-assessment analytic called 'CLARA' which supports a self-directed learning journey supported by our new Learning Journey Platform.

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We specialise in enhancing Learning Power measurably and systematically using a range of coaching tools and techniques. We work with all ages and across many different cultures supporting organic, place-based change, aligned to global sustainability.

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1. Introduction and Purpose of the Project

The purpose of this project is to develop an integrated, student-led approach to learning design and analytics for self, peer and expert assessment and accreditation of 21C meta-skills in Foundation Apprenticeships. The project was initially developed by Skills Development Scotland, then taken on by NCFE and implemented by WILD. The outcome will be deeper understanding of how to design learning experiences for 14–19-year-olds that develop their self-leadership, learning relationships and complex problem-solving skills in a particular domain. This will be data informed and captured in the form of a Learner Experience Map.

1.1. Background

The Organisation for Economic Co-operation and Development (OECD) and the World Economic Forum (WEF) are amongst many organisations that have developed lists of the most in-demand skills of the future (OECD, 2016[1]; World Economic Forum, 2016[2], 2020[3]). Whilst these lists vary in order of priority and in the terminology, they use, there are substantial commonalities. The prominence of complex problem solving, critical thinking, creativity, empathy, responsibility, collaboration, and cognitive flexibility reflect the consensus that intellectual knowledge alone will no longer be sufficient to guarantee well-being and human development in the future. The OECD defines skills as part of 'a holistic concept of competency, involving the mobilisation of knowledge, skills, attitudes, and values to meet complex demands' (OECD, 2019[4]).

It is the aim of this research programme to develop a student experience map that will

[1] OECD (2016) *Skills Matter: Further Results from the Survey of Adult Skills*. OECD (OECD Skills Studies). doi:10.1787/9789264258051-en.

[2] World Economic Forum (2016) 'The future of jobs: Employment, skills and workforce strategy for the fourth industrial revolution', *Global Challenge Insight Report* [Preprint].

[3] World Economic Forum (2020) 'The Future of Jobs Report 2020', in. World Economic Forum Geneva.

[4] OECD (2019) *OECD skills strategy 2019: Skills to shape a better future*. OECD Publishing Paris.e34

support FE institutions to integrate a student-led approach to learning analytics for self, peer and expert assessment and accreditation of 21C skills in Foundation Apprenticeships.

1.2. Purpose of this Document

The purpose of this document is to describe how we went about setting up a pilot project with a Further Education College in the Midlands. It documents the approach, the methodology and the quantitative, qualitative, and narrative findings and how they were analysed. It will identify the interventions and pedagogies used by tutors and students to discern what worked, when, how, in what context and for whom. By making a record of this project we offer our learning outcomes to the wider educational community, in the hope that it will contribute to professional discussion and solution-finding about how to create meaningful learning experiences that support students in developing 21C competences and employability skills.

1.3. Layout of Document

The report is structured in five main sections. First an introduction to the purpose and aims of the project. Next, we describe the project approach which takes seriously the complexity of the problem we were seeking to solve and describes how we set up the project and engaged with tutors to design pedagogies and interventions informed by the data obtained. Here we present the data, how it was analysed and quality assured. In section three we discuss the findings followed by a summary and discussion of next steps and pathways to impact in section four. Financial reporting is documented in section five with appendices attached to the end of the report to provide more details.

2. Project Approach and Methodology

2.1. Aims

- To work with a team of tutors and a cohort of Foundation Apprentices in a Further Education College (Nottingham College) to facilitate and scaffold the development of

student skills for self-management, social-intelligence, and innovation into their curricula experience over one iterative 90-day professional learning cycle.

- To deepen our understanding of how learning power and learning journeys can support, enhance, and extend the development of Meta-Skills.
- To develop assessment criteria for Meta-Skills development and explore how these can be integrated into student self-directed learning, both ipsatively, formatively and summatively, enhanced by the innovative use of learning analytics.
- To explore how learning analytics and the affordances of myWILD App can enhance and scale this process.
- To produce a robust evaluation of project impact to support the validation of approach and wider dissemination of learning to the sponsor organisation's stakeholders.

2.2. Approach

The project methodology used experiential learning cycles set within the framework of a learning journey. This Work Integrated Learning Design (WILD) approach starts with Purpose, followed by Plan, Do and then Review. In this pilot the learning journey was aligned to the project plan devised by the college, and it attended to two levels of learning within the college as a complex living system – students' learning and tutor professional learning.

This WILD approach guides the learner through a Planning stage, where the individual sets personal change targets as well as planning the 'how' of the project, including problem structuring and analysis and ideation of options for change strategies.

Next, the Doing stage is where the change strategies are implemented and evaluated in practice, integrating the why, the how and the what.

Reviewing is the final stage where the learning outcomes are presented for self, peer and community assessment.

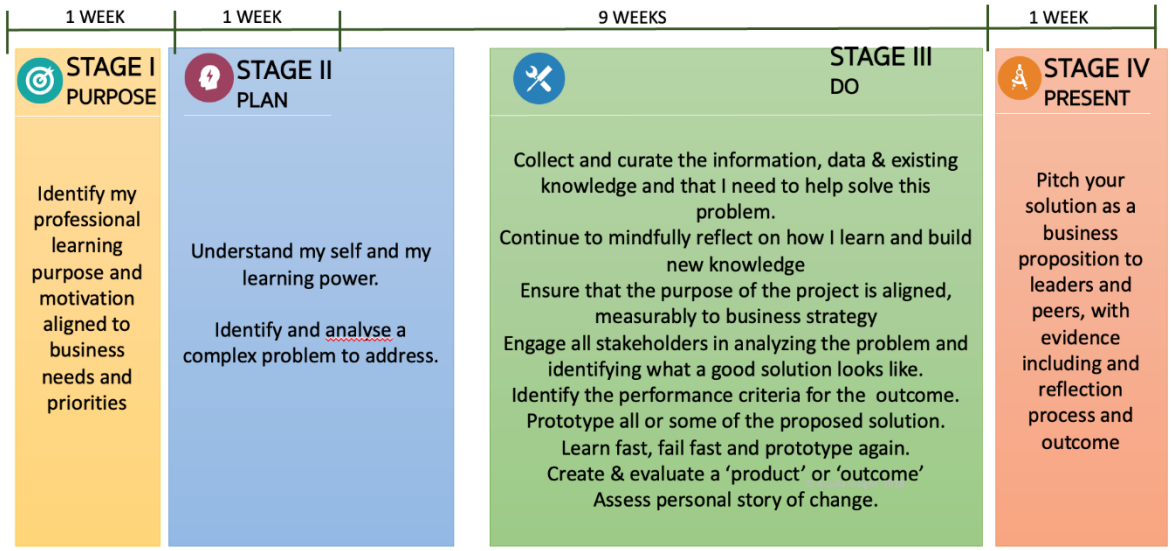

Figure 1 Four Stages of a Learning Journey

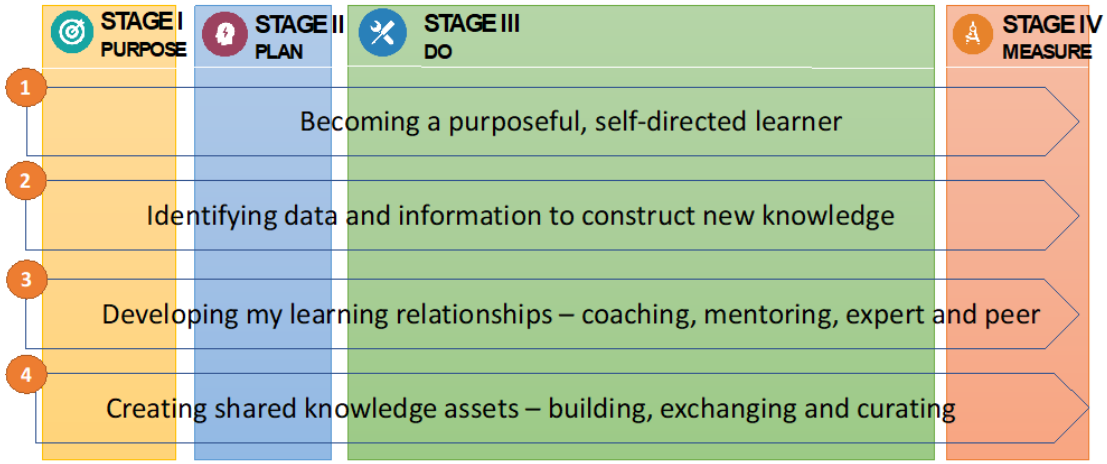

Figure 2 The four flows of personal change

Overlaid continuously on this learning journey framework are four flows of personal change which focus on, and are practiced and applied in, the implementation of the change strategies identified in the learning journey. These are (i) the development of self-directed learning capabilities (ii) the development of learning relationships (iii) the identification of relevant data and information to be utilised in the process of constructing new knowledge in solving the identified problem and (iv) harnessing and sharing the new knowledge for the benefit of the community.

These stages provide the structure for the journey which determine the territory for navigation. It indicates the nature of the learning dispositions and thinking capabilities which the learner will need to develop through each stage. Assessing and reflecting on personal learning power dimensions facilitates both reflexive self-awareness and learning relationships as well as providing a stimulus for the thinking skills required for planning and for generating new knowledge.

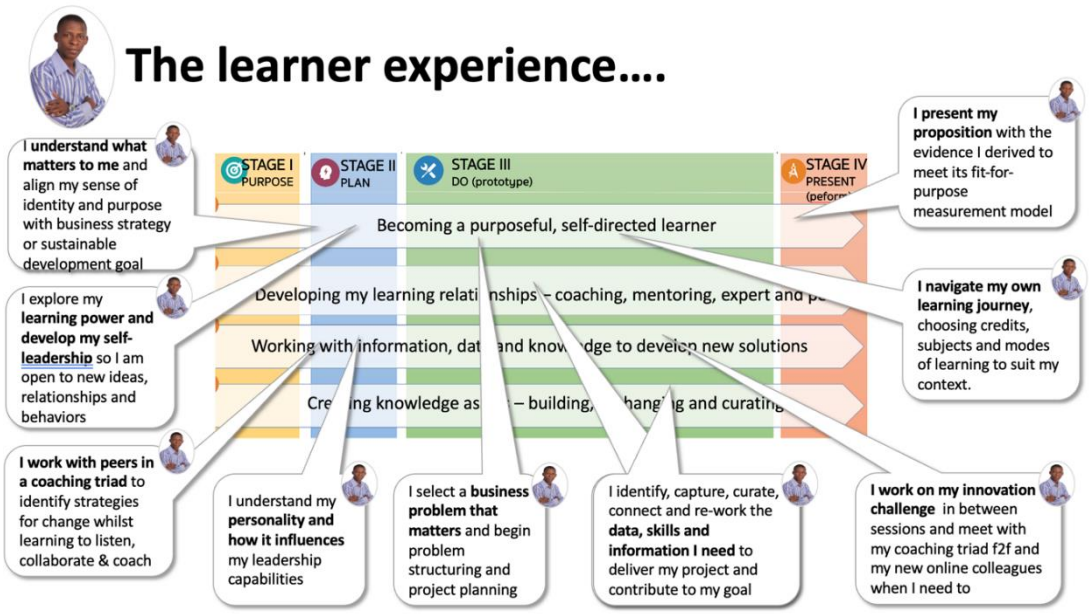

Figure 3 Learner Experience Mapping

The assessment event attached to each project included a personal narrative account of the way in which the individual navigated their learning journey; an account, with evidence, of how they have developed and used learning relationships in their knowledge-building journey; and evidence relating to the solution they have arrived at to the complex problem they addressed.

2.3. Description of the Project Process

At the outset of the project students started by undertaking their own learning power profile and employability skills questionnaire. Data from these surveys were used to inform facilitated learning conversations with students that focussed first on students' sense of identity and personal purpose and enabled them to set learning power targets for change. This then informed the development of their thinking skills which they would utilise in their

independent enquiry project, using thinking skills tools to identify, analyse and find solutions for the complex problem presented to them in their project brief. The project brief, provided by the Nottingham Canal Trust, was to plan/design and ultimately build a bench to be permanently placed along the Nottingham Canal. Students were engaged in regular coaching-for-learning conversations throughout the project and WILD's thinking skills for authentic enquiry were explicitly modelled and facilitated for students to support their progress.

WILD Coaches used the anonymised and aggregated quantitative data for learning co-design with the college tutor. This entailed the team understanding what the data had to 'say' about the learning needs of their cohort and designing learning interventions which mapped directly onto the learning power dimensions and meta-skills which the data diagnosed as most in need of development with this cohort. WILD team members supported the FE tutor through weekly 1-1 coaching and joint planning sessions.

On completion of the project the students undertook a second learning power profile and, through comparison with their first, engaged in reflection on their personal and professional development through the project. There was an authentic assessment at the end of the learning journey cycle at which students presented:

1. Their artefact and innovative contribution to the problem space.
2. A personal story of significant change which illustrated the student's self-leadership, presented in narrative form.
3. Evidence of the application and meaningful use and development of one or more meta skills to their project outcome.

This pilot project used a sample size of one cohort of Foundation Apprentices studying level 2 maintenance and one FE tutor – approximately 20 individuals.

2.4. Professional learning and learning design

The college tutor embarked on their own learning journey in parallel with the students. They too undertook their learning power profile and engaged in regular, weekly, 1-1 coaching conversations to explore their professional identity and learning purpose. They were invited to set targets for change and use these to think differently about their professional practice and learning design.

Figure 5 Learning Journey Cycle

Joint planning sessions were held weekly to provide the time, space and conditions for co-constructive learning design with WILD specialists. Group data from both the learning power and employability skills questionnaires was used to design pedagogies and interventions that built on group strengths and targeted areas for improvement. The framework of the learning journey and the 8 stages of enquiry gave a structure by which episodes of learning could be planned and mapped and signposted into the student experience with the language of learning power and employability skills being used throughout.

Examples of taught interventions included an initial session on 'the importance of purpose' followed by a sequence of activities using the framework of the 8 cycles of enquiry. Students were supported in engaging in the process by carefully crafted and scaffolded activities that sequenced the steps of 'observing and describing' their object from multiple different viewpoints. They then used their observations to generate questions about their object and uncover stories and narratives about their object and the interactions others may have with it. They then mapped their knowledge and used their sense making to build a schema to understand their data and use what they now knew to decide what 'good' looked like and to identify their own success criteria. Students were then afforded the time and space to connect with expert knowledge and seek answers to any outstanding questions to help build their theoretical and practical understanding of their project as they built their prototype model of their artefact. Finally, students presented their learning in a final assessment event

where wider college staff were able to interact with students and discuss both what students had produced, in terms of their final artefact, and listen to their story of personal development.

3. Data collection and analysis

Data was collected from students through 2 online questionnaires. The first was the Learning Power survey, comprised of 62 items that students self-rated on a Likert scale of 1-6, 1 being 'not at all like me' ranging through to 6 being 'very much like me'. Student responses were collected and reported back to individuals in the form of a learning power profile.

The second questionnaire involved students completing an online employability skills survey comprised of 36 statements that students responded to on the same Likert scale used above. The data collected was analysed and mapped against the '3 buckets' of self-leadership, learning relationships, and complex problem solving to give students feedback both at the individual question response level and against these 3 broader skill sets.

Figure 6 Eight thinking and learning skills for authentic enquiry

3.1. Quality Assurance

The project was quality assured by careful teamwork, and close collaboration and co-design with the College tutor. Roles within the team meant that data and its analysis was moderated by at least two people and stress-tested for usability and common sense in team meetings.

4. Findings

This project ran over 6 weeks with students attending college, in person, each Thursday. In addition to face to face teaching every Thursday the college tutor engaged in a 1-1 professional coaching session and a team joint planning meeting each week. In addition, our professional learning lead worked directly with the college tutor and students to help deliver and implement the planned learning episodes and change strategies.

Working in this manner was a very effective way of ensuring the college tutor was able to build on the insights gained from their coaching conversation and apply them to their practice with pedagogical support from WILD's professional learning coach. The college tutor was able to embark on a parallel learning journey, alongside their students, and learn from 'the inside out' by identifying their professional purpose to fully explore the problem they wanted to solve. With support they were able to integrate the language of learning power into their practice and use the framework of the learning journey and 8 stages of enquiry to create authentic, enquiry-based learning experiences for their students.

It was unfortunate that the project had already started before we were able to engage in this way with the tutor as it would have been preferable to incorporate this approach to planning and learning design from the outset. It was also less than ideal that face to face time with the students was limited to one day a week as any absence had a significant impact to student's learning experiences. As we look to learn from this initial pilot, consideration of how to ensure this approach from the very first stages of project design must be made with professional learning a priority as learning dispositions are modelled, not taught.

Initially students completed both their learning power profile and employability skills questionnaire. The feedback from these were then used to frame learning conversations that supported students in identifying their purpose and strategies for change. Taught sessions were held that helped students further understand the importance of purpose and how to use the language of learning power to guide their thinking about what they wanted to do. The 8 stages of enquiry then provided a framework by which the college tutor, with support from the team, was able to design weekly sessions that guided students through the process of moving from purpose to product with a final presentation of the students' learning being held in the last week. This presentation involved students showcasing their learning journey, and final product, to members of the wider college community. Students were able to present both the experience of their learning journey alongside their final project artefact with data provided by their pre and post learning power profiles framing their story of personal development.

It was significant that despite initial concerns that student attendance would begin to decline over the course of the project, with a particular decrease in numbers expected as their final, external, examinations were completed on the 22nd of June, this was not the case. Student engagement with the project was such that 16 students attended the final assessment event and successfully presented their learning to their peers and tutors.

4.1. Learning Power

4.1.1. Students

Students undertook the learning power assessment at the beginning of the project. Their feedback was provided in the form of a learning power profile and used to frame an initial coaching-for-learning conversation. This gave students the space and opportunity to engage in self-reflection about who they were and what mattered to them. Students were able to use the conversation to explore what their profile meant to them and how it fitted in with their personal story and experiences to date. Through this conversation, students began to use the language of learning power to think differently about their project and begin to articulate their purpose. The learning power coach left the students with an invitation to set

targets for change that directly linked to their purpose. Below is an example of one student's learning power profile and the initial prompts for discussion.

Context

You are a student studying at Nottingham College. You are currently working towards a foundation apprenticeship.

You are interested in finding out more about learning power and how it can help you to become a better learner.

This is your learning power profile. It shows your relative strengths and areas for development across the 8 different learning power dimensions. We will explore what this means for you and how you can use this information to help you progress in your current project.

Figure 7 Learner A's initial learning power profile

Mindful Agency... Seeing the big picture, taking responsibility and being proactive, while managing my feelings; the opposite is being 'robotic'.

Sense Making... Making connections between ideas, memories, facts – everything you know – linking them and seeing patterns and meaning. Its about how learning matters to you.

Creativity... Risk-taking, playfulness, using my imagination and intuition in my learning; the opposite is being 'rule-bound'.

Curiosity... Asking questions, wanting to know more, getting below the surface, refusing to take things at face value; the opposite is passivity.

Belonging... Being supported, encouraged, feeling at home, in my learning community; the opposite is being 'out of place'.

Collaboration... Interacting with fellow learners, getting and giving support, solving problems by teamwork; the opposite is being isolated.

Hope & Optimism... Seeing myself as one who learns, grows, improves over time, having travelled already; the opposite is being 'stuck and static'.

Orientation to Learning... Being ready and open: striking a balance between determination and adaptability; not too fragile and dependent nor too rigid and persistent.

Your Learning Power profile:

Your profile is characterised by your more fragile and dependent openness to learning. This suggests you can feel quite vulnerable in unfamiliar situations when you don't know what to do. Do you prefer to rely on others for direction and allow others to take a lead in how to go about things? This can be a real strength. There are often times when we all need to recognise that we need to turn to others for support and help. However, sometimes it is important to realise that we can make the necessary decisions for ourselves and that stepping out of our comfort zone to take control can be quite empowering.

Your profile also suggests you have relative strengths in sense-making and creativity. Being able to use your sense making to make connections between what you know already and new information is a key skill in pursuing your goals and realising your hopes and dreams. How can you combine these strengths along with your curiosity to think of new and novel ways to approach problems and think outside the box to find different solutions to problems you face?
How can you use your imagination to think of new ideas? Do you ever just daydream and let your mind run free? Sometimes, when we stop trying to think too hard about something, new ideas can just pop into our heads. It's ok to go 'off track' sometimes and ask strange and interesting questions. Learning is all about the 'what if?'. Let your inspiration lead your thinking sometimes. It can really help with your levels of engagement in your learning.

Figure 8 Excerpt from learner A's initial coaching report

Figures 1 and 2 above show sections of one example of a pre-coaching conversation report. These reports were provided to learners in advance of their first coaching conversation. As can be seen in the document they provided both the visual feedback of the learner's profile

as well as some points of interest to help stimulate their initial reflections in their coaching conversation.

In the profile above learner A self-reports relative strengths in sense-making, creativity and hope and optimism. The dimensions representing learning relationships – collaboration and belonging - are much lower rated with belonging significantly lower than all others. The orientation to learning scale indicates that this learner tends towards fragility and dependence when faced with uncertainty and challenge.

4.1.2. Stories of Significant Change

STUDENTS

Students used their learning power profiles to engage in self-reflection about their sense of identity as a learner and how that identity had been constructed from their lived experience to date. Their initial coaching conversation used the language of learning power to frame a discussion that helped students make sense of their self-reflections and to explore their purpose. Students were encouraged to set targets and to consider how they were using their learning power at every stage of the enquiry cycle. Learning episodes were designed to make this 'double-loop' learning explicit and purposeful reflection time was built into each session to ensure students had the chance to thoughtfully consider how they had engaged different dimensions of learning power in the successful execution of the day's activities. The language of learning power was deliberately embedded in practice, signposted, and modelled by the learning professionals facilitating the work.

Following completion of the project, students completed a second learning power profile and were asked to reflect on their personal development and evaluate any changes in their learning power profiles. Figures 9 and 10 below illustrate 2 different student's initial and final learning power profiles.

Learner M's first learning power profile shows relatively low levels across all dimensions with a notable lacking in curiosity. Learner M initially found it hard to articulate their story or link their profile to their past experiences of learning. They spoke about not really being that good at school and not being very sure about what they wanted to achieve. They spoke about how they had just signed up for this course as they hadn't got the GCSE's they needed to do a level 3 qualification and it 'sounded ok'.

Figure 9 Learner M: Pre and Post Learning Power profiles

As can be seen by their second learning power profile learner M has significantly improved in many of the dimensions. Their post project profile shows a much more rounded profile with notable increases in their levels of creativity and belonging. When asked why they thought that was learner M responded,

> "I wasn't really bothered about what we was doing at first but when we did the stuff about what's the purpose of a bench I was like, yeh, what is it? I never thought about it like that before. I just got thinking about different stuff and it got interesting. I was like why do we do stuff? Why don't we do it different? That was like me using my curiosity to ask questions and that got me thinking all different, caring like."

Learner B's first learning power profile shows a tendency to persistence and relatively low levels of collaboration, belonging and creativity. Notably, by the end of the project, learner B had made significant improvements in their sense of belonging. When asked why he thought that might have been he responded,

"I didn't really know no one before this project. I was just kind of going along with it and doing my own thing. I'm gonna [sic] join the army and I wasn't really bothered about nothin' much else. Now I know what I am doing and why I'm here. I've gotten to know some more people and (to) work with them and that has helped me feel like I wanna be here a bit more"

When asked if he thought that this had helped him be successful in his project learner B responded,

"Yeh. I think it has helped me to make my bench better. I didn't really care that much before but when I started to talk about it to other people and that, it made me think more about what I was doing. I wanted to make my bench a really good one because it's really gonna to get used on the canal and that and that made me feel kind of proud, like what I was doing was making a difference like'

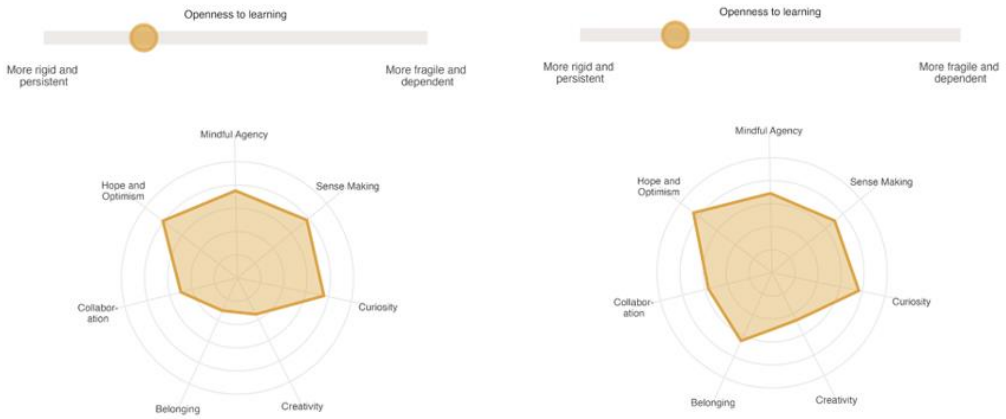

Figure 10 Learner B: Pre and Post Learning Power profiles

These are just 2 examples taken from the group where the majority of students completing both learning power profiles showed some improvement in at least 1 dimension. The overwhelming feedback from the group was that understanding their learning power had helped them to achieve a more meaningful outcome. As one learner put it,

"I didn't know nothing about learning power before like. I wasn't sure why we did stuff. Normally you just get told what to do and that. Now I'm like but I get to choose how I do stuff. Make my own decisions like and that makes me feel more interested … I know I've got this learning power stuff and that means I can do sense making and ask my own questions and stuff. That makes me feel kind of good and its more interesting' Learner K

Discussions about how students could use learning power in all aspects of their lives led to one very lively discussion where one student asked how it would help them get a job. This led to a discussion about learning power and employability with a particular focus on skills, the interview process and writing a CV (see figure below). The conversation was thoughtful, and students were deeply engaged. It was clear that students valued learning power as something which could contribute to them being able to get a good job and stand out in a competitive market. They were clearly able to make the links between learning power dispositions and key skills for employment. By thinking through the recruitment process from the perspective of the employer, students were able to understand why an employer may value an individual with good levels of learning power and self-leadership. They understood the importance of learning relationships in the context of the workplace and were able to see the importance of mindful agency, particularly, in being able to use their learning power to solve problems with solutions that were not known in advance. It was an impromptu discussion but one of significant importance in the project. The time afforded to this group discussion was incredibly powerful in terms of making the connections between classroom and workplace and between the dispositions of learning power (I am) and skills (I can).

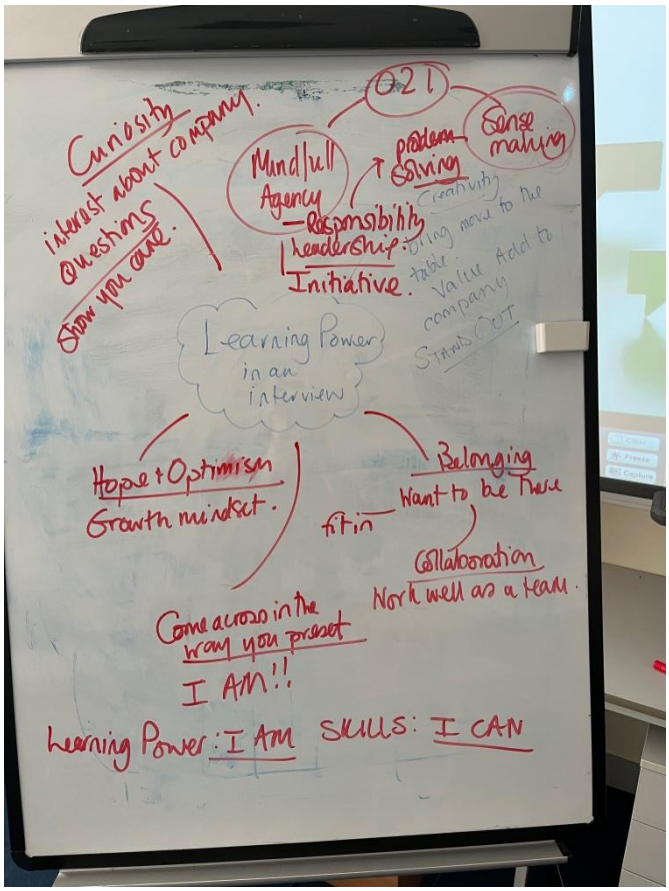

Figure 11 Outputs from group discussion on learning power and employability

COLLEGE TUTOR

Individual learning power data of the college tutor has not been included here due to the small scale of this study and potential for identification. However, part of the professional development for the college tutor was enrolment on the Learning Power and Systems Thinking Qualification (LPST). This qualification attracts 10 credits at level 7 on the Scottish Credit and Qualification Framework. The LPST requires 100 notional hours of commitment by learners and requires some direct teaching of the necessary knowledge and skills. It is expected that 20 guided learning hours will be afforded for this taught element. The remaining time is allocated to the student to undertake their innovation project and engage in coaching for learning conversations to guide their learning journey. It is understood that teaching of the knowledge and skills required for completion of this project may vary from student to student and therefore these should be agreed by the Learning Professional supervising the student as appropriate to the needs of the student and their project. Throughout the programme learners are required, with appropriate supervision, to:

- Undertake a learning power diagnostic assessment
- Explore their sense of identity and purpose
- Use the language of learning power to engage profitably in self-reflection and coaching for learning conversations to set personal strategies for change
- Choose a system of interest
- Learn the process of problem structuring and how to use tools for knowledge building and innovation
- Plan and carry out an innovation project
- Deliver a presentation to a non-specialist audience that documents their learning journey, project outcomes and their personal story of significant change
- Provide evidence of all stages of the project development process for assessment

Figure 12 Outline of the LPST Qualification for virtual delivery

	HOURS			
Learning Activity	Formal Input	Additional Activities	Assessment	Total
Pre-reading		8		
Formal Taught input	25			
Coaching for learning		12		
Project Activity		42		
Recorded Reflection		10		
Asessment Event			3	
Total Number of notional learning hours				100
			Credit Rate Value	10

Figure 13Breakdown of notional learning hour for the LPST Level 7

On completion of the LPST qualification learners achieve several outcomes. It is expected that they will:

- Understand their sense of identity and purpose
- Understand how to use the language of learning power to develop effective self-led learning and self-leadership capabilities
- Understand the importance of and have developed effective learning relationships both with self and others
- Know how to explore a system of interest to obtain and critically evaluate information using systems thinking skills
- Have developed skills for innovation
- Be able to identify, design, plan and complete a self-directed enquiry project applying their learning power and a range of thinking and learning strategies to meet agreed objectives
- Have developed complex problem-solving skills by observing and describing, generating questions, uncovering narratives, knowledge mapping and building ‘models’ to construct new knowledge

- Be able to select and use a range of communication skills and media to present their learning, including project outcomes and a story of personal change, in an authentic assessment event
- Evaluate outcomes as per agreed co-constructed objectives of their learning and performance

In addition to the LPST training programme the college tutor also engaged in one-to-one coaching sessions with a member of the WILD team. These coaching conversations focused on the tutor's personal Learning Power profile results. Through coaching, the tutor was able to understand the language of learning power, explore the different dimensions of Learning Power and make meaning from their results by connecting with their own current reality, bringing to life personal strengths and opportunities for development more deeply. These sessions created space for a different kind of conversation, one that was very much focused on the tutor's own professional learning and personal/professional purpose and context. Any blockers were talked through and worked on resulting in the tutor being better equipped to follow through on positive learning interventions for their cohort of students. We describe this as mindful agency – where the learner takes responsibility for their own learning and knows what actions to take to achieve their purpose.

Coaching enabled us to effectively support the professional learning and associated learning interventions that were developed through this project which was a significant factor. You cannot give what you haven't got and by modelling what good looks like at a tutor level it has a cascading effect, helping tutors to engage with their students' learning more effectively. Learning Power offered a consistent language for learning at all levels of the system.

4.1.3. Aggregated Learning Power profiles

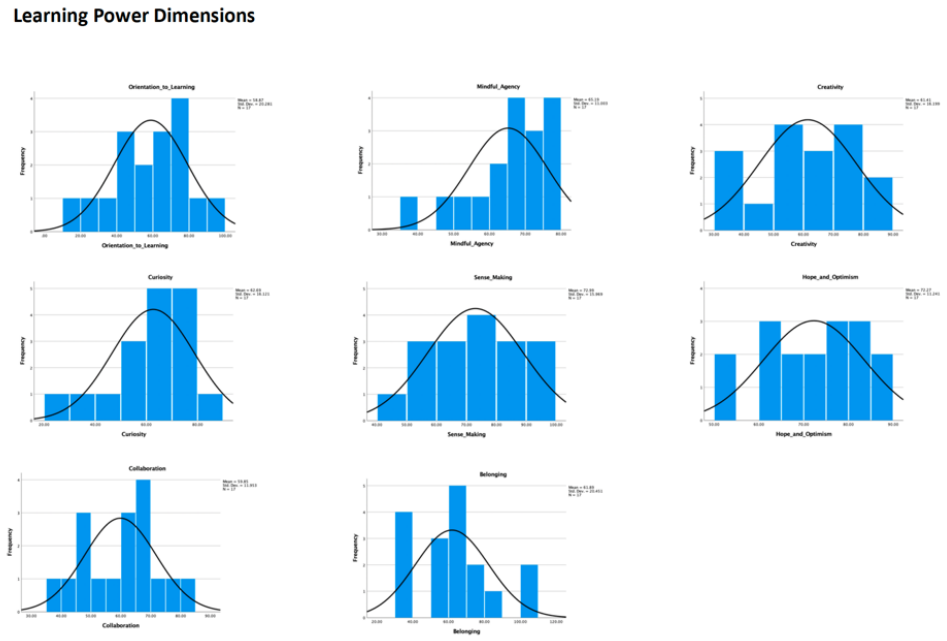

Figure 14 Aggregated and anonymised group learning power data

Figure 3 above shows the aggregated and anonymised initial data set obtained from the class. These data show the distribution of data around the mean for each learning power dimension in the form of frequency charts.

As can be seen from the charts the group scores indicate that this group have a relatively well-balanced orientation to learning with some strengths in mindful agency and creativity. Belonging and collaboration, both dimensions representing learning relationships, are the lowest reported.

4.2. Helix and employability skills

The employability skills survey comprised of 36 statements derived from a much larger data set from the Helix project developed over twelve years at the Systems Engineering Research Centre, Stephens Institute, New York. The Helix statements are linked to the US Department of Education's skill components and link to several different employability skills that include systems thinking, critical thinking, communication, literacy skills, resource management, information use, technology use and interpersonal skills. To ensure that feedback was

meaningful for students these items were mapped onto the '3 buckets' of self-leadership, learning relationships and complex problem solving. This grouping is consistent with a review of the literature on 'lists of employability skills' undertaken by the WILD and Helix project teams.

The data below show the feedback obtained at the group level. Learning relationships appear to be the lowest scoring dimension, followed by complex problem solving. The group self-report higher scores against questions mapped onto the self-leadership scale.

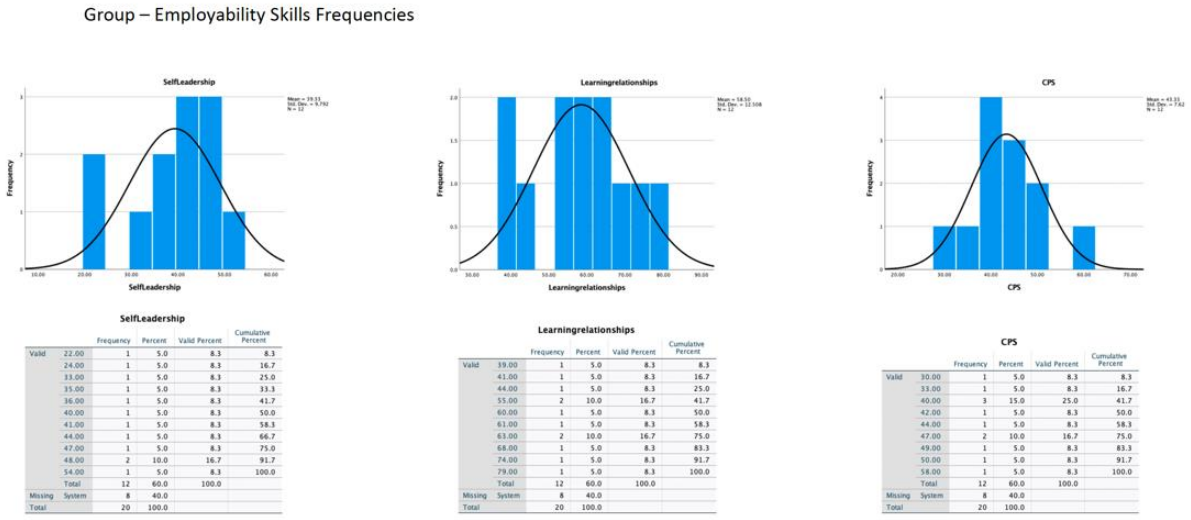

Figure 15 Employability skills feedback at the group level

4.3. Ethics

Ethical considerations in undertaking this research were informed by the key principles of voluntary participation, informed consent, anonymity, confidentiality, minimising the risk of harm and results communication.

Participants completing the online questionnaires were provided with a privacy policy and end user licence agreement that outlined how the data provided would be processed, handled, and stored. It accounted for the anonymity and confidentiality of that data and how the results may be used for research purposes in the future. Participants were not able to complete the survey without having acknowledged they had read and understood this policy and given their informed consent. Copies were available for participants to download.

Informed consent to participate in the wider study was obtained from students by completion of an ethical consent form (See appendix). This form outlined the purpose of the study and explained how participants' data would be handled. Matters pertaining to anonymity, confidentiality, and the risks and benefits of participation were outlined. Attention was drawn to their right to withdraw from the study at any time.

5. Discussion

It is apparent that the learning design embedded into this project is very much needed in this particular setting. The College has awareness that there is diminished engagement on the part of these type of students. It appears that, over time and due to a range of factors, there has been something of a spiral of low aspiration, low engagement and lowered expectations.

The College staff shared their uncertainty around the delivery of this employer engagement project. It had never been delivered by them before and on reflection, they regretted leaving the project to the very end of the course.

The learner and tutor experience would be significantly enhanced by deeper consideration of learning design for embedding the meta skills and learning power expertise offered by the WILD team at the planning phase and introduction of the project. In this instance, the tutor had already introduced the project to the students before being fully clear on how it would unfold and be assessed. By way of illustration, it was not known if the physical artefact of the 'Canalside Bench' was going to be manufactured with fidelity to a design created by any of the students, which would make it an authentic workplace project, or whether it was more of a 'paper exercise'.


Figure 16 Students Enquiry

The learning episodes planned for the sessions earmarked for this project did not initially include significant and coherent relation to meta skills, the characteristics of deep learning (known to WILD as Learner Power dimensions) nor a story of personal change. The tutor responsible for the student cohort allocated to this particular project is relatively new to the profession and transitioned into FE College teaching during the pandemic. They have embraced the opportunity for CPD which has been rooted in their own personal Learning Power profile. WILD have provided the tutor with one-to-one professional coaching-for-learning which has been a key element and the tutor has taken up the opportunity to engage in WILD's Learning Power and System's Thinking level 1 qualification. This carries 10 credits on the Scottish Qualifications Framework.

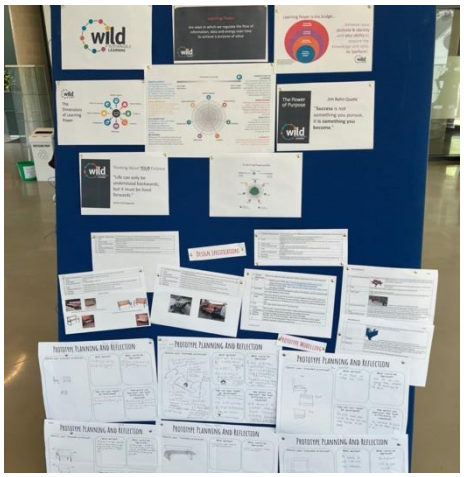

Figure 17 Artefacts from Authentic Assessment Event

Despite the bench project already having been introduced and planned prior to engagement with WILD, team members have been afforded the opportunity to collaboratively adapt some of the learning sessions and to work directly with students. The students have generally demonstrated an appetite for deeper engagement with their learning experiences and have been receptive to the data gleaned about the

group and about them as individuals in relation to employability skills and Learning Power.

An example of the 'story of change' for the tutor is that they were inspired through a personal Learning Power Coaching conversation which led directly to a planning meeting to co-construct learning design with a WILD team member which resulted in students harnessing one of the groups stronger learning dimensions to engage more deeply with the bench project in the very next session at the college.

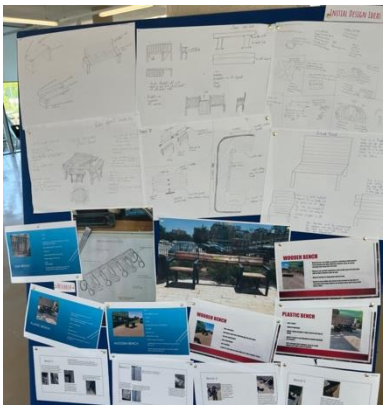

Figure 18 Initial Design Ideas

The tutor and the college have used the initial findings to reframe the project. Students have been given more autonomy to explore their personal purpose and their unique contribution to the project. The college are seeking to extend the duration of the learning time and project as well as seeking to enhance the status of the final 'artefact' – the product – and the story of personal change - created by the students.

Figure 19 Design Testing

Both the initial learning power data and the initial employability skills data indicate the group have low levels of learning relationships – notably a lack of belonging and collaboration as well as poor levels of communication skills. Observation of the group over the early course of the project supports these findings with students describing their lack of identity with the group and low levels of knowledge of one another.

The WILD team have been supporting the FE tutor to explore what interventions and learning episodes can be designed to support students in developing effective learning relationships. Problem structuring activities have been designed that promote collaboration and working together to make sense of new data and find solutions to problems posed. The targeted authentic assessment presentations focus on the students' skills in communicating their findings (and hopefully their passion) and making an authentic contribution to the Canal Trust in terms of the proposed bench.

6. Pathways to impact

6.1. How do we make this work sustainable and scalable?

Existing approaches to assessment in education generally focus on measuring 'outcomes' of learning and often in a manner which is standardised and focused on narrow set of indicators, such as the acquisition of knowledge or a particular performance. The evidence is that a focus on high stakes, summative assessment depresses students' motivation for learning.[5] What is required is a focus on formative assessment for learning that values both the process and performance - a more holistic approach to the development and assessment of wider student outcomes. Using learning analytics to facilitate learning conversations with students focused on developing awareness, ownership and responsibility for learning is a powerful vehicle for development of wider holistic outcomes because it supports student's own sense of identity and developing purpose as well as how they learn and what they want to achieve. Learning power profiles provide both a visual stimulus and a language that help students and tutors to explore their sense of narrative identity as learners and set targets for personal, social and intellectual development. Learning Power is both a language and assessment technology for meta skills such as self-leadership, learning relationships and complex problem-solving, which demonstrably enhance students' curriculum experience, performance, and employability. We know student self-leadership is a key driver of deep and authentic engagement in learning, which itself is a key driver in student retention, with skilled Coaching-for-Learning conversations within a trustful relationship being the single most powerful intervention for using learning power to empower student self-leadership.

Learning power profiles also provide tutors and leaders with diagnostic information for

[5] Harlen, W. and Deakin Crick, R., 2003. Testing and motivation for learning. *Assessment in Education: principles, policy & practice*, *10*(2), pp.169-207.

intelligent and targeted learning design, both for individuals and cohorts of students. At present tutors do not feel confident in the requisite skills and professional competences to deliver and assess wider student outcomes, such as those described here. Developing such professional capabilities requires education policy to empower school leadership to develop cultures that encourage and support innovation. Indeed, Teacher professional agency and innovation are key drivers because of the need to re-design authentic curricular experiences to facilitate student self-leadership, learning relationships and problem-solving skills. A richer, more authentic measurement model for education in the uncertain world of the 21C is long overdue.

6.2. How can we best develop the Helix Employability Skills Survey into a formative assessment experience for students?

New measurement models are required that can reliably and validly capture student self-leadership, learning relationships and problem-solving capabilities. New technologies offer new opportunities which should be developed and exploited – enhancing, not abandoning, traditional outcome measures.

The existing Learning Journey Platform already provides the digital assessment and feedback of learning power, both at an individual and a group level. This platform has the capability to support additional 'apps' such as a purpose designed Employability Skills App. Such an app, that empowers the development of self-leadership, learning relationships and complex problem-solving as '21C metacompetences', could provide scaffolding for student agency and choice in authentic work integrated learning projects. These three learning design principles would invite students to encounter their own sense of identity and purpose, to select and develop skills that enable them to achieve that purpose through a learning journey project and to present the outcomes of their learning through narrative self-assessment, qualitative peer review and through evidence of intellectual rigor in complex problem solving. The

proposed Employability Skills App would draw on the Intellectual Property of the Helix Project[6] [7]and be adaptable for learners across the key stages.

It is envisaged that on completion of the employability skills questionnaire students would be provided with visual feedback that indicates the relative mean self-scores across the three different buckets (see the proposed student feedback interface below). Students would be able to investigate each of these buckets further by 'digging down' into subsequent layers of increasing granularity.

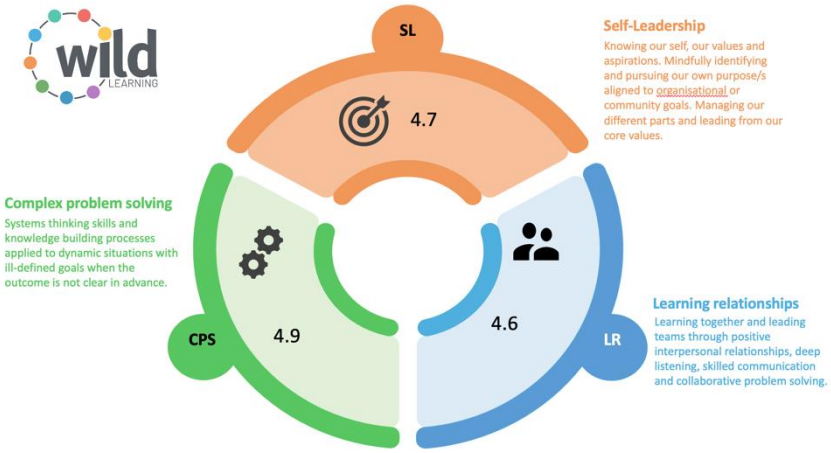

Figure 20 Possible student interface of the proposed 'employability skills app'

On clicking into the visual students would receive 'RAG' rated feedback on each of the statements responded to as mapped to each 21C metacompetency. The purpose of the RAG rating is to demonstrate to student their areas of strength and potential areas of development. By investigating further students can focus on a 'red' highlighted statement and explore additional guidance and possible strategies for change.

[6] McDermott, T., Hutchison, N. and Crick, R., 2021, July. The Evolution of HELIX: A Competency Model for Complex Problem Solving. In *INCOSE International Symposium* (Vol. 31, No. 1, pp. 907-925).

[7] Hutchison, N., Tao, H.Y.S., Burke, P., Luna, S., Zavala, A., Kothari, S., Soneji, S. and Ramirez-Marquez, J., 2019, July. Evolution of the Helix Project: from investigating the effectiveness of individual systems engineers to systems engineering organizations. In *INCOSE International Symposium* (Vol. 29, No. 1, pp. 652-668).

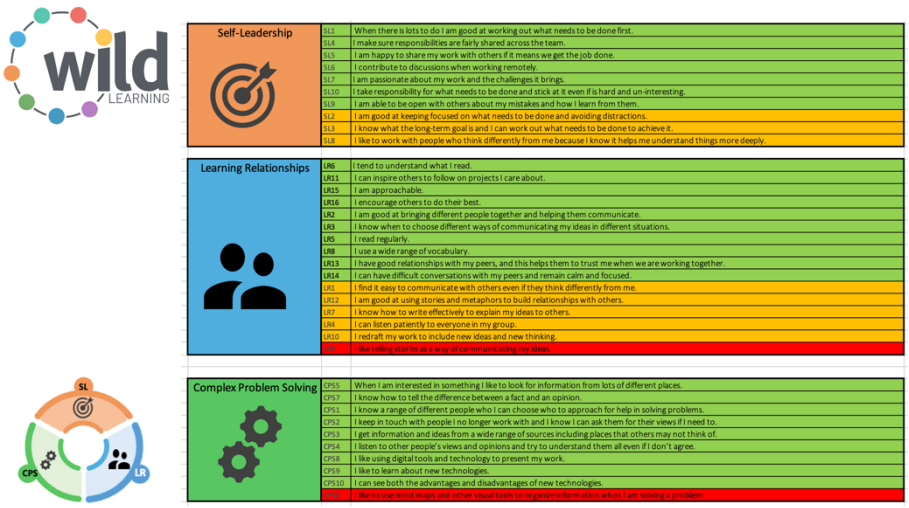

Figure 21 First level down of employability skills app

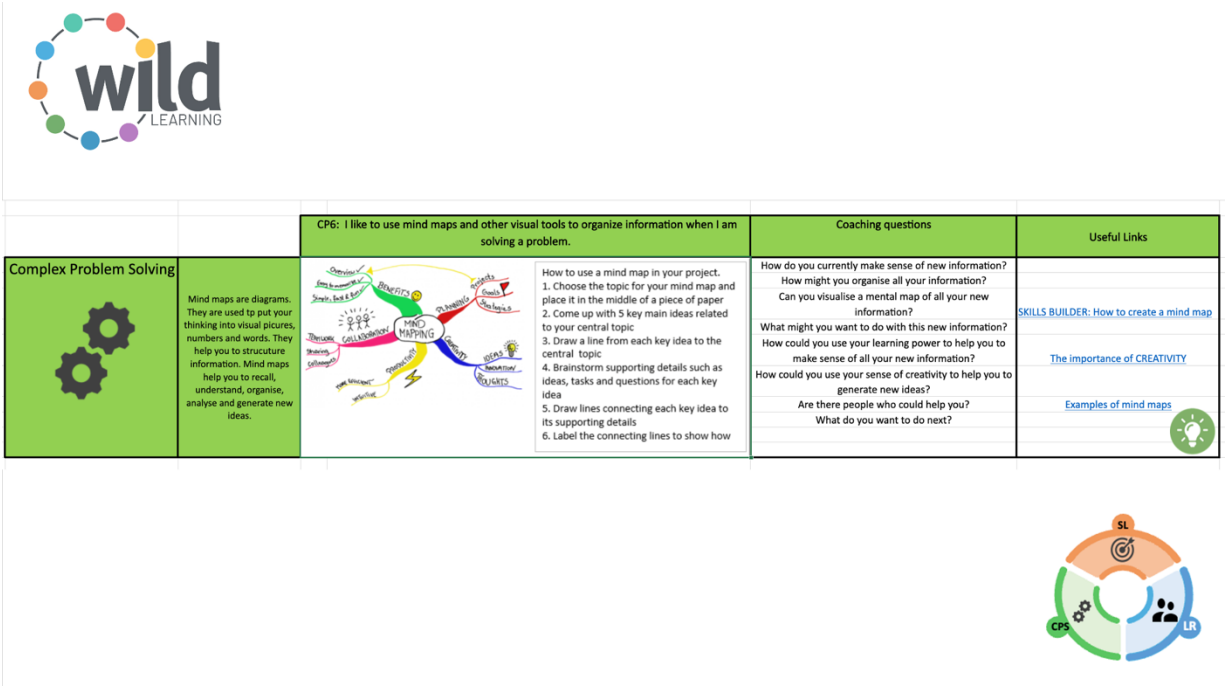

Figure 22 Detailed statement feedback

It is proposed that at this level of the feedback students would be prompted to consider strategies for change that they could incorporate into their project. Useful links could provide additional touch points for support and resources and coaching prompts could provide supporting provocation to further learner's thinking.

7. Conclusions and Recommendations

This project has produced some important findings. Not least the value of this approach in providing meaningful learning experiences for students that supports deeper, more authentic engagement in learning. In using authentic enquiry as an approach to sequence students' encounter with learning experiences students can align their sense of self, identity and purpose with the job to be done. The key to success here is in providing the conditions necessary for students to develop agency in their learning.

Traditional approaches to curriculum design tend to supress learner agency with pre-determined outcomes and transactional style methods of delivery taking precedence over more student led enquiry. Such approaches are an inevitable consequence of the high-stakes, high-accountability, outcome driven system tutors and teachers currently work in. That is not to say that outcomes are not important or valuable, rather, that in solely focussing on traditional measures of performance, the learning experience becomes less formative and wider student outcomes can become side-lined as a 'nice to have' as opposed to equally valued. The design of new, innovative teaching practices requires the support of leadership teams to create the conditions necessary for practitioners to have professional autonomy for their learning design. This new approach demands learning at every level of the system and a dramatic change in world view, where the old ways of thinking and doing education are replaced by a commitment to new and innovative, more holistic practices.

We see this project as an important entry point into the field of Further Education. The college is keen to continue and build on the work to date. We are in conversations with their senior leadership team and key departments about how to take this learning forward into the new academic year. We know the important conditions are time, people, and support. The intention is to widen our reach by working strategically across a number of different departments to up-skill tutors and integrate the WILD approach into faculty curriculum plans and learning design. Building internal capacity is essential for scaling and impact.

We are open to working with more partners from across the sector to increase the visibility and exposure of this work. We are excited about the digital capability to capture formative self-assessment measures of student self-leadership, learning relationships and problem-solving. Working with a wider population would provide a larger data set for the development of this approach and identify how feedback can be used to develop 21st century meta and employability skills. We see this capability as central to scaling and impact.

8. Key Findings

- Learning Power provides a language and assessment technology for self-leadership, learning relationships and problem-solving skills that demonstrably enhance students' curriculum experience and performance, particularly in work-based learning.

- Learning power profiles provide both a visual stimulus and a language that help students and tutors to explore their sense of narrative identity as learners and set targets for personal, social, and intellectual development.

- Student agency is a key driver of deep and authentic engagement in learning and the development of employability skills.

- Learning power profiles provide tutors and leaders with diagnostic information for intelligent and targeted learning design, both for individuals and cohorts of students.

- Skilled Coaching-for-Learning conversations within a trustful relationship are the single most powerful intervention for using learning power to empower student self-leadership.

- Tutor agency is an essential driver of the learning design required to deliver and assess wider student outcomes. Developing such professional agency requires a radical new approach to teacher education whereby ITT programmes train a 'new

breed' of learning professional capable of designing learning experiences for students where they operate across a continuum of pedagogical approaches and prioritise learning by design.

- Courageous leadership is required to develop institutions with a culture of learning that encourage and support pedagogical innovation.

- New measurement models are required that can reliably and validly capture student self-leadership, learning relationships and problem-solving capabilities.

- New technologies offer new opportunities which should be developed and exploited – enhancing, not abandoning, traditional outcome measures. Digital capability is key to scaling.