

# The Future Challenges

## Young People and Mental Health: MiHUB



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Young People and Mental  
Health Resilience

# The Future Challenges: MiHUB

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## Project Dates

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## Approvals

Project Partners	Role	Approval Received
West of England AHSN Senior Leadership Team	Sponsor	20 December 2021
ProReal Ltd	Innovator	14 December 2021
Wiltshire Council	Host	14 December 2021
Wessex Centre for Implementation Science	Evaluator	17 December 2021

## Funding

The West of England AHSN, under the Office for Life Science commission, funded the Future Challenges programme to aid the adoption and spread of promising innovations. This real-world validation project was delivered as a collaboration between all project partners. The project report has been co-written, with the data analysis and evaluation being conducted by the Wessex Centre for Implementation Science.

The project was undertaken during the Covid-19 pandemic. The delivery of the intervention and timescales were adjusted as necessary, to accommodate government guidance and lock downs.

#### Assurance rating

* This report can be used for context and background information	<input type="checkbox"/>
** This report can help inform decision making, when considered with other information	<input checked="" type="checkbox"/>
*** This report is the best available evidence to date	<input type="checkbox"/>

#### Suggested citation:

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## Executive summary

### Context

[The Future Challenges Programme](#) has been a central part of the West of England AHSN's remit to support innovation in health and care, delivered as part of the commission from the Office for Life Sciences to aid the adoption and spread of promising innovations. MiHUB utilises [ProReal Ltd's](#) avatar web-based interactive technology and was selected by an expert panel of assessors due to its potential value to improve outcomes for young people and to support the key priorities of the local health providers. The West of England AHSN co-designed the project with the innovator, clinical commissioning group (CCG), Local Authority, school and evaluator explore the potential value of the innovation for young people's mental health resilience in a secondary school setting.

Currently, around one in ten children/young people in England has some form of clinically diagnosable mental health problem, while half of all mental health conditions are established before the age of 14. The NHS Long Term Plan commits to a significant expansion of services for children and young, including the creation of Mental Health Support Teams (MHSTs) in schools. School-based prevention projects have the potential to reduce mental health burden and advance public health outcomes and the school environment provides an ideal context to deliver these.

### The intervention

MiHUB is a self-help technology designed to help young people with self-reflection and coping skills. Developed by UK tech company ProReal Ltd, the technology uses 3D virtual worlds in which young people use avatars and symbols to create visual representations of everyday challenges. MiHUB has ten self-help exercises on a range of social and emotional topics which the students in this project wanted covered (e.g. relationship difficulties, worries about assessments, feeling low, being kind to myself, etc). Short videos are also available. No identifiable data is saved on the browser or on the device and no user credentials are required to use MiHUB. This design was adopted to provide users with complete confidence that their data was private and confidential.

The MiHUB intervention activities were originally planned in 2 phases: a developmental phase with students aged 11-14 (across school year groups 7-9 n=75) and then a pilot with the same year groups but with a larger sample (n=400). After the onset of Covid-19 project activities needed to be modified in line with pandemic restrictions, therefore a smaller sample participated (n=250 in year 8) with modified implementation within the context of the *Skills for Life* initiative, which is integrated within the Personal, Social, Health and Economic (PSHE) education curriculum and as an additional resource for students to use independently at school or at home.

## Evaluation

A detailed logic model informed a real-world mixed-methods formative and summative independent evaluation, collecting both qualitative and quantitative data. The primary objective was to ascertain the extent to which the MiHUB project helped students 'feel good and function well', as well as improve their mental wellbeing, resilience and coping strategies. Secondary objectives aimed to identify the patterns of engagement of students (benefits and limitations) and to assess the extent to which the MiHUB project could become routine practice within the school. Informed consent was received from students, their parents or guardian and school staff.

### Impact of Covid-19 on the MiHUB delivery model and evaluation

The Covid-19 pandemic had an extensive impact on both the project and evaluation due to government mandated lockdowns and extensive school closures. After the onset of Covid-19 in early 2020, activities were modified in line with pandemic restrictions affecting school timetables and routines, and this naturally caused interruption to data collection. The pilot phase two was hosted but with a smaller sample, no comparison group, and was delayed by seven months. The school decided that reflective sessions during tutor-time after the start of the pilot roll-out would not be included as part of the delivery model.

### Data collection & analysis

As initially planned, primary outcome data was collected (n=143 pre and n=66 post with a matched sample of n=40) using a validated measure of wellbeing (WEMWBS) and an innovation specific outcome measure for MiHUB reflective and coping skills (a specific skills survey linked to the key aims of the ProReal technology). Secondary outcome data was collected from students by way of discussions, surveys and a structured focus group. Staff provided feedback in both phase one and phase two. Quantitative survey data was analysed numerically using SPSS 26.00 software for descriptive statistics and statistical analysis. Qualitative data was analysed using thematic analysis, Force Field Analysis, and the RE-AIM framework. Data from each phase were affected by Covid-19 circumstances, resulting in incomplete data, which has impacted our findings.

## Project findings

### Key learning:

- MiHUB was deemed acceptable and worthwhile by students and staff, which is considered a strength, given school-based interventions can be found to have good outcomes but with low user-acceptability.
- Students were engaged with the resource, were interested in making comments about it and most felt that it would be useful for either themselves or others.
- The school also felt positive about the resource; they believed it complemented existing teaching and support, and asked to have extended access, beyond the trial period.
- The project did not cause any known harm during implementation, which some anticipated may occur with unsupervised access at home.
- While use of MiHUB (as an optional resource to be used independently) cannot be shown to improve mental wellbeing or resilience from our evaluation, it may provide an additional resource to engage young people in conversations and reflections about their mental health and related issues.
- Potential staff concerns about safeguarding should be addressed early in implementation (students highlighted confidentiality as a benefit), with appropriate training to address any underpinning staff assumptions that an intervention may not work, as these will undoubtedly affect implementation success.

MiHUB was deemed acceptable and worthwhile by students who identified benefits and limitations. Often school-based interventions (irrespective of impacts) are not found to be acceptable by young people or school staff, therefore the high level of acceptability demonstrated by MiHUB is a particular strength identified within this evaluation. Students described the intervention as fun and were engaged with the resource. They particularly valued the interactivity, creativity and autonomy associated with MiHUB. The school believed MiHUB complemented existing teaching and asked to have extended access beyond the test-and-learn phase. The interactive nature of the resource, which is customised during each visit by the user, may make it more attractive to return to repeatedly than a static information-based website and may have added to the high levels of acceptability by students.

The evaluation highlighted that low and average-coping student groups may benefit from additional targeted support to enhance or develop their coping skills in MiHUB.

Similarly, coping skills such as *telling others about difficult thoughts or feelings* was identified as an additional area that may need further targeting by the innovator and the school. Use of MiHUB, including beyond the school day, has the potential to extend access to a mental health resource that includes links to helping agencies in school and beyond. There are some aspects of MiHUB that may be helpful in engaging young people with a resource that they enjoy using repeatedly and that can contain key messages about mental health and highlight helping services.

The ability to promote contact with the school pastoral support service or other local or national helping agencies is unknown, beyond a very small number of anecdotal reports and was beyond the scope of this evaluation. But at an individual level the evaluation was able to highlight that two students had acknowledged MiHUB as the catalyst in their decision to request additional pastoral and emotional support from school staff.

The evaluation identified that MiHUB was accessed 2,040 times over four months (approximately 17 times a day). Due to the anonymous nature of MiHUB, it is not known how many students accessed it and how often they did, but data from the student focus group (n=7) indicated an average frequency of three times. It is also important to note that the trial did not cause any known harm from use, which some anticipated may occur with unsupervised access at home.

## Conclusion

School staff are critical actors in the implementation of school-based prevention programmes. Embedding innovations, such as MiHUB, within PSHE lessons aligns with guidance on teaching and policy on mental health and emotional wellbeing. Potential staff concerns about safeguarding should be addressed early in implementation (children and young people highlighted confidentiality as a benefit). There should be appropriate training to address any underpinning staff assumptions that an intervention is not going to work, as these will undoubtedly affect implementation success.

Whilst the effects of Covid-19 were such that no meaningful conclusion could be drawn on quantitative improvements to student wellbeing due to MiHUB, the project demonstrated it can effectively be integrated into a wider school system of education and support related to mental health, which is acceptable to school staff and students.

## Potential for the future and next steps

The MiHUB project has been an example of a multi-partner real-world validation and evaluation. It has provided an opportunity for a larger number of students to experience the MiHUB platform and its ten structured self-help theme-based guides. Further evaluation should be undertaken focussing on reach, effectiveness (more data about its potential impact on the mental wellbeing and coping skills of students), adoption, implementation and maintenance of MiHUB.



This project has provided an opportunity for effective collaborative working across an Integrated Care System including NHS organisations, local authorities, and industry, resulting in key learnings for future partnerships. The West of England AHSN Industry and Innovation Team will continue to support ProReal Ltd to further explore opportunities for:

- further evaluation of how young people use MiHUB
- cost-benefit evaluation
- different commissioning models for this type of intervention
- further refining the MiHUB value proposition and delivery model for schools



## 1. Context

The [Future Challenges programme](#) is a central part of the West of England AHSN's remit to support innovation in health and care and delivered as part of the commission from the Office for Life Science to aid the adoption and spread of promising innovations. MiHUB utilises [ProReal Ltd's](#) avatar web-based interactive technology and was selected by an expert panel of assessors due to its potential value to improve outcomes for young people and to support the key priorities of the local health providers. The West of England AHSN co-designed and planned the project with the innovator, clinical commissioning group (CCG), local authority, school and evaluator to explore the potential value of the innovation for young people's mental health resilience in a secondary school setting.

Currently, around one in ten children/young people in England has some form of clinically diagnosable mental health problem,<sup>1</sup> while half of all mental health conditions are established before the age of 14.



## 2. Background

The [Future Challenges programme](#) is a central part of the West of England AHSN's remit to support innovation in health and care and delivered as part of the commission from the Office for Life Sciences to aid the adoption and spread of promising innovations. The aim of the programme is to identify and articulate local healthcare challenges and develop a system where healthcare professionals can connect with industry and innovators to support the development of healthcare solutions.

In June 2019, the MiHUB project, which utilises [ProReal Ltd's](#) (ProReal) avatar web-based interactive technology, was selected by an expert panel of assessors due to its potential value to improve outcomes for young people and to support the key priorities of the local health providers. Wiltshire Council and the Bath and North East Somerset, Swindon and Wiltshire Clinical Commissioning Group (BSW CCG) were matched to the solution, to work with ProReal to use virtual reality technology to help supplement current mental health approaches. Royal Wootton Bassett Academy (RWBA) in Wiltshire were selected to trial MiHUB with a range of students from Years 7, 8 and 9.

In parallel to this, specialist evaluators based at the Wessex Centre for Implementation Science (WCIS) were also identified via a separate tender to assess the impact and effectiveness of this project. Using a co-production approach, the students and RWBA members of staff worked closely with ProReal's developers to refine and test the platform to be suitable for their use, focusing on their needs and preferences.

The West of England AHSN utilised a co-design-based process with the innovator, clinical host, school and evaluator to design and plan a project to explore the potential value of the innovation for young people's mental health resilience.

This project has been a great opportunity for the West of England AHSN to build collaborative relationships across the Integrated Care System including the Local Authority, the school and the CCG, bringing innovation into practice to potentially solve needs within the health and care community.

## 2.1. The mental health context

The NHS Five Year Forward View for Mental Health acknowledges that “mental health has not had the priority awarded to physical health, has been short of qualified staff and has been deprived of funds.” Responsibility for early intervention and prevention in this area has typically fallen outside the remit of specialist mental health care services, e.g., Child and Adolescent Mental Health Services (CAMHS) and Children and Young People's Improving Access to Psychological Therapies Programme (CYP IAPT). From 2020, the health education components of Personal, Social, Health and Economic (PSHE) education became a statutory requirement and compulsory in all schools. The statutory guidance includes provision for the teaching of mental health and emotional wellbeing.

The NHS Long-term Plan sets key ambitions for the next ten years<sup>2,3</sup>. Among these was a commitment to a significant expansion of services for children and young, including the creation of Mental Health Support Teams (MHSTs) in schools and schools being encouraged to create the role of designated senior lead for mental health with a rolling programme of training being envisaged for this role.<sup>1,4</sup>

Currently, around one in ten children/young people in England has some form of clinically diagnosable mental health problem,<sup>1</sup> while half of all mental health conditions are established before the age of 14.<sup>5</sup> This has implications beyond school as mental health problems for young people in contact with the criminal justice system range from 25% to 81%, being highest for those in custody.<sup>6</sup> Mental health conditions have significant impact on physical wellbeing, as well as affecting outcomes and treatment costs, with an estimated minimum NHS spend of between £8 billion and £13 billion a year.<sup>7</sup>

The need is therefore clear and recognised<sup>8,9</sup> for schools to be able to support young people in developing and enhancing the tools needed to cope with life and potential mental health difficulties.<sup>10</sup> As depression and anxiety often emerge for the first time during youth, “the school environment provides an ideal context to deliver prevention programs, with potential to offset the trajectory towards disorder”.<sup>11</sup> To this end, the PSHE Association promotes guidance and lessons on teaching about mental health & emotional wellbeing.<sup>12</sup>

School-based prevention programmes have the potential to reduce mental health burden and advance public health outcomes.<sup>11</sup>

Universal resilience-focused interventions for short-term reductions in depressive and anxiety symptoms for children and adolescents have shown promising outcomes,<sup>13</sup> although there are reports of generally low effect size of the interventions.<sup>14</sup> Reviews emphasise the potential and the promise of school-based prevention programmes and highlight the need for a larger and more robust evidence base to support scaling up<sup>11,14</sup> and this is also an international issue.<sup>14,15</sup>

It is therefore clear that “large-scale effectiveness trials that evaluate implementation efforts that are embedded within the school system are now needed in order to identify the most successful ways to roll-out prevention programs on scale”.<sup>11</sup> The use of avatar-based, virtual world software in counselling has some history in schools.<sup>16,17</sup> However, the ‘clients’ have always been individuals with already identified mental health challenges.

ProReal’s technology has been evaluated in schools, but only as an adjunct to school counselling and where psychological or emotional challenges are already affecting the young person.

## 2.2. The school context

All stakeholders in this programme were keen to help develop and trial new uses of technology in a school setting. It was felt that MiHUB would be an appealing and accessible tool that could be easily added to the suite of local interventions to support the wellbeing and resilience of young people at an earlier intervention stage. It was anticipated that this new intervention would be likely to reach a new group of previously not identified young people, who may have unmet emotional and mental health needs. Commissioners in Wiltshire were interested to find out whether such a creative visual approach would be more likely to engage some groups of students, in particular boys, who are known to access early help and mental health support in smaller numbers than girls.

The participating school was part of the [Wiltshire Healthy Schools programme](#), and has continually sought out new methods to engage students with strategies for improving mental health. It was chosen because of its focus on and commitment to developing resilience in its students and has tended not to receive mainstream support from other sources. The school intended to use MiHUB to support the delivery of PSHE education lessons and was seen as a valuable addition to the school’s newly introduced ‘Skills for Life’ programme. Staff saw a benefit from a new initiative, that would support students to develop a self-supporting approach to their mental health.

## 2.3. The intervention

MiHUB is a web-based platform, accessible using most modern browsers<sup>a</sup> and was introduced as a technological component used as part of the school's broader PSHE lessons. The aim of the technology is to provide an engaging adjunct to PSHE lessons and thereby support the wellbeing and resilience of students. It does this by helping young people to identify, communicate and reflect on difficult thoughts and feelings, and to enable their reflection and perspective taking.

MiHUB is an effective tool, potentially enabling young people to explore their own thoughts, feelings and relationships in a context that has been shown to be suitable for those identified as finding face-to-face interactions in the real world more difficult to establish and continue. The software was seen as particularly suitable for young people who find existing talking therapies challenging to engage with, or who may have communication difficulties.

MiHUB was built using ProReal's avatar web-based interactive technology – a 3D virtual world in which a user can add and edit visual scenes to represent their experiences. The [evidence base](#)<sup>b</sup> (carried out by independent researchers) suggests that young people, particularly boys, find ProReal's technology a helpful medium to express themselves. [Research](#)<sup>b, 16,17</sup> with young people in a variety of settings shows ProReal technology (using alternative approaches) have been beneficial in relation to helping young people. The technology is in use by several health and social care providers, where it has been part of the Small Business Research Initiative (SBRI) and is part of the NHS Global Digital Exemplar programmes.

The Future Challenges MiHUB project is the first time in which a self-help version of the technology has been evaluated in a secondary school setting.

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<sup>a</sup> [MiHUB \(proreal.world\)](http://MiHUB.proreal.world) for additional information

<sup>b</sup> [About - ProReal](#)

Figure 1: The MiHUB platform



## 2.4. Co-production approach to design

MiHUB was specifically designed for young people by providing users with a choice of ten self-help exercises (Table 1 outlines the components used in this real-world evaluation).

Each one of the exercises includes separate on-screen instructions to follow and most have supporting videos to demonstrate an example of use. The selection of ten subjects and design, look and feel of the technology was based on input from workshops with young people, recent school counselling evidence, youth education specialist/counsellors and CAMHS practitioners. Section 1 focussed on '*getting started*' and Section 2 on '*what's going on for me?*'



Table 1: The different components (exercises) tested in MiHUB during phase two of the project

Section:	Title of the unit or module	Supporting video?	Guided self-help exercise?	Which landscape is used?	Module duration (approx.)
1	Introduction	Yes	No	N/A	2 mins
1	How to use	Yes	No	N/A	2 mins
1	Feeling safe	No	Yes	Storytelling	10 mins
2	How's my day	No	Yes	Storytelling	10 mins
2	Friendship issues	Yes	Yes	Storytelling	30 mins
2	Family difficulties	Yes	Yes	Storytelling	30 mins
2	Feeling low	Yes	Yes	Storytelling	30 mins
2	Handling assessments	Yes	Yes	Empty room	20 mins
2	Handling a difficult relationship	Yes	Yes	Empty room	30 mins
2	Being kind to myself	Yes	Yes	Empty room	20 mins
2	Understanding myself	No	Yes	Empty room	45 mins
2	My space	No	No	Storytelling	N/A

## 2.5. Data security, privacy and safeguarding

No identifiable data is saved on the browser or device and no user credentials are required to use MiHUB. This design was adopted to provide users with complete confidence that their data was private and confidential. An information governance review was also completed which sought signoff from the project team members (including stakeholders).

Components to address safeguarding procedures for young people were addressed after the first design phase and included support links and signposting, limited hours of use and clear positioning from year group leaders so that the intervention could be integrated into the curriculum through PSHE lessons.



### 3. Aims and objectives

WCIS worked with the project team to co-design the evaluation plan, which aimed to answer the following objectives:

#### Primary objective

1. To ascertain the extent to which the MiHUB project helped students 'feel good and function well', as well as improve their mental wellbeing, resilience and coping strategies, including in relation to the key aims of the ProReal technology, such as communicating complex thoughts and feelings and enable greater self-awareness and confidence.

#### Secondary objectives

1. To identify the patterns of engagement of students with the MiHUB project and its benefits/ limitations.
2. To assess the extent to which the MiHUB project could become routine practice within the school (e.g., drivers, barriers, pathway changes necessary to integration within the curriculum, existing pastoral care system, including counselling and other mental health initiatives and clinical pathways).



## 4. Methods

### Scope, design, data collection and sampling strategy

RE-AIM is a validated conceptual framework<sup>18,19</sup> commonly used to evaluate resource-based interventions in health and social care and underpinned the evaluation of the MiHUB project and was complemented by Force Field Analysis (FFA).<sup>20, 21</sup> A detailed logic model was co-designed with partners, informing a real-world mixed-methods formative and summative evaluation. The mixed-methods design collected both qualitative and quantitative data from participants.<sup>22</sup> Qualitative data was collected to provide insights into underlying complex social processes<sup>23</sup> and quantitative data to enable the identification of patterns of similarities and differences.<sup>24</sup>

### Impact of Covid-19 on the MiHUB delivery models and their evaluation

The Covid-19 pandemic had an impact on both the project and evaluation due to government mandated lockdowns and extensive school closures during the 2019/20 and 2020/21 academic years, including restrictions on standard school life, which included the use of 'bubbles'<sup>c</sup> in school year groups.

The MiHUB activities were originally planned in two phases: a developmental phase with students aged 11-14 (across school year groups 7-9 n=75) and then a pilot with the same year groups but with a larger sample (n=400), but with not all students taking part to allow for a comparison group in each year. After the onset of Covid-19, project activities needed to be modified in line with pandemic restrictions affecting school timetables and routines, and this caused interruption to data collection approaches. The pilot phase two was hosted but included only Year 8 students (n=250).

The project team decided that the collection of the post-intervention data for the groups that had taken part in phase one should be cancelled due to the closure of the school, because of the possibility that the results may be skewed and not valid for standard school conditions. Online usage from home had not yet been agreed with parents, and a subsequent risk assessment concluded that it would not be appropriate to recommend use at home whilst the school was in lockdown. The link to MiHUB was deactivated, avoiding potential risk that students could become distressed while using MiHUB and not having guaranteed access to a teacher or other appropriate support. Focus groups were also cancelled.

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<sup>c</sup> Bubbles in this context refer to the public health protection strategies used in schools in the UK during the Covid-19 pandemic, to segment students into consistent groups, as far as practicable. Groups ideally would not mix during school hours.

Further delays were encountered when phase two rollout was delayed by seven months and limited only to Year 8<sup>d</sup>. Form tutors introduced MiHUB using a PowerPoint presentation by the school from ProReal and WCIS. The presentation to students included a video from ProReal and the link to the MiHUB platform and guides. MiHUB was rolled out in late February 2021 to Year 8 students in home learning after the risk assessment was revised, which was only two weeks before schools in England began to re-open their doors. The school decided that the reflective sessions during tutor-time at week three and week five after the start of the pilot roll-out would not be included as part of the delivery model.

## Data collection and analysis

Primary outcome data was collected using a validated measure of wellbeing (WEMWBS<sup>e</sup>) and an innovation specific outcome measure for MiHUB reflective and coping skills<sup>f</sup> (a specific skills survey linked to the key aims of the ProReal technology). Secondary outcome data was collected from students by way of discussions and surveys during phase one and by way of a structured focus group in phase two. Staff provided feedback in both phase one and phase two.

Quantitative survey data was analysed numerically using SPSS 26.00 software for descriptive statistics and statistical analysis (Mann Whitney U test for independent samples, Wilcoxon Signed Rank Test for matched samples and Cronbach's alpha coefficient of reliability). Qualitative data was analysed using thematic analysis,<sup>25, 26</sup> Force Field Analysis,<sup>20, 21</sup> and the RE-AIM framework.<sup>18,19</sup> Table 2 outlines the data collected for the evaluation.

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<sup>d</sup> Y7 students were excluded as they had just started secondary school and had been home schooling since March 2020. Y9 students were excluded to allow them to prioritise school work and assessments in the context of not having physically attended school for the previous six months.

<sup>e</sup> The Warwick-Edinburgh Mental Wellbeing Scales were developed to enable the measuring of mental wellbeing in the general population and the evaluation of projects, programmes and policies which aim to improve mental wellbeing. The 14-item scale WEMWBS has five response categories, summed to provide a single score. The items are all worded positively and cover both feeling and functioning aspects of mental wellbeing, thereby making the concept more accessible. The scale has been widely used nationally and internationally for monitoring, evaluating projects and programmes and investigating the determinants of mental wellbeing.

<sup>f</sup> The survey includes five questions focussing on reflection, processing and sharing difficult thoughts and feelings, understanding the thoughts and feelings of others, and finding different ways of coping with difficult situations.

Table 2: Summary of actual data collected for evaluation (rather than planned)

Phase One			
Activity	Purpose	Timeline	Number
Introductory session for parents	Hosted by ProReal Ltd at the school	January 2020	-
Workshop 1	Introduce participants to using ProReal, videos and self-help guides. Receive feedback on design functionality and usage	January 2020	75
Workshop 2	Led by ProReal, with one school staff. Feedback to students on their co-design feedback, introduce and testing new features and guides. Receive feedback on design functionality, usage and participation in workshops	February 2020	44
Data collection baseline surveys	Mental wellbeing, resilience, reflective and coping skills	January 2020	75
Feedback	From students about MiHUB platform and guides, prospective usage of MiHUB and MiHUB workshops and learning from the experience	January and Feb 2020	48
Feedback	School Staff	March and April 2020	6
Data collection post surveys	Mental wellbeing, resilience, reflective and coping skills	cancelled	-
Analysis	Trends in usage of the MiHUB platform	Feb – Apr 2020	-
Focus Group	With student participants	cancelled	-
Phase Two – launch was delayed due to lockdowns			
Activity	Purpose	Timeline	Number
Consent	200 consent forms were received from parents in year 8		192
Introductory session for participants	The School introduced MiHUB to students via PPT slides as part of the Skills for Life programme to be circulated to the students by their Form Tutors	February 2021	Up to 250
Rollout of MiHIB	Included the link to the platform and guides was made available to students via the School login during national lockdown for use at home or school (not integrated in to curriculum)	Feb 2021	200
Baseline	Mental wellbeing, resilience, reflective and coping skills	Feb 2021	143
Survey	Post intervention mental wellbeing, resilience, reflective and coping strategies survey	May 2021	66
Focus group	Post intervention Focus group with students	May 2021	7
Feedback session	Post intervention feedback from teachers	May 2021	3
Data analysis post intervention	Trends in usage re visits to MiHUB platform and short anonymous feedback survey at the end of each of the 10 MiHUB guides	May 2021	unknown



## **Impact of Covid-19 on data collection**

Due to the pandemic adaptations to delivery of the project had to be made at short notice, so some planned data collection was not possible, which resulted in a reduction of complete data, particularly for phase one. Interviews had to be completed over video calls and this is likely to have led to some students lacking memory of certain aspects of the project.

Post-phase one data collection for the groups that had taken part in the developmental phase were cancelled, as the results may have been skewed and not valid for 'normal' school conditions or for a potential business case for future commissioning. Focus groups to evaluate the developmental phase one were also cancelled.

The phase two pilot roll out was delayed by seven months and only made available to all Y8 students instead of half the Y7, Y8 and Y9 students so the sample was smaller and there was no control group. Form tutors were only minimally involved and reflective sessions were cancelled, so they were not able to provide feedback on these sessions.

## **Informed consent, confidentiality, anonymity, and data management**

A Data Protection Impact Assessment (DPIA) completed and approved by partner Data Protection Officers (DPOs). The school was identified as the gatekeeper, data controller and data processor and therefore provided detailed information to parents, students and staff members about the project. Informed consent was received from school, parent and student participants. The evaluation received ethical approval from the University of Southampton.



## 5. Findings

Due to the impact of the Covid-19 pandemic and the way in which school restrictions affected both the rollout and data collection, we do not report on evaluation data from phase one. Whilst the quantitative data analysis on student wellbeing from phase one was collected and does give some insights into the difference in wellbeing between different age groups (Y7–Y9+), it does not aid in the primary or secondary objectives of evaluating MiHUB and is therefore not discussed as part of the findings contained within this report.<sup>9</sup>

What we do note is that the baseline data for Y7 and Y8 in both phase one and phase two was broadly similar to the findings reported by Widnall *et al*<sup>28</sup> who surveyed mental wellbeing in 17 secondary schools in the South W

est of England 2019–2020. This indicates that the mental wellbeing of students in this participating school can be described as similar to others in the South West region.

### Results for primary objective:

The purpose of this objective was to ascertain the extent to which the MiHUB project helped students ‘feel good and function well’ as well as improve their mental wellbeing, resilience and coping strategies. This included the key aims of the ProReal technology such as communicating complex thoughts and feelings and enable greater self-awareness and confidence.

### Wellbeing – phase two pre and post samples

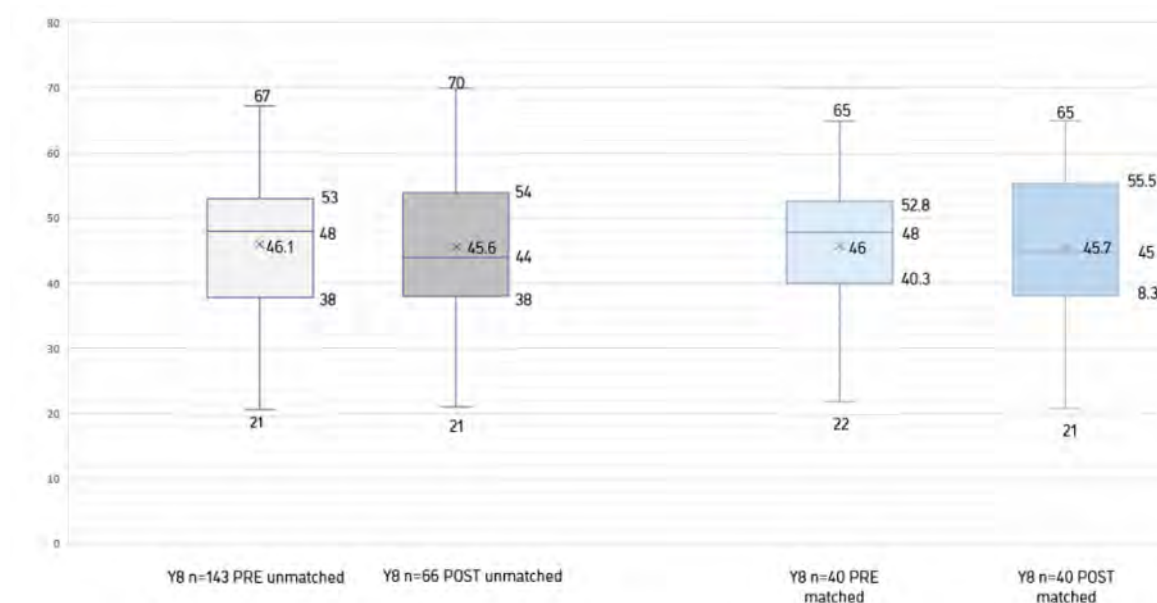
Pre and post data collection was only undertaken in phase two when MiHUB was offered to the entire Year 8 group [n=250], with 77% of parents [n=192] returning consent forms for the evaluation. Of those where consent was received, n=143 [74%] completed the pre surveys and n=66 [34%] the post survey. However, due to attrition in the completion of survey data the matched pre/post sample was only n=40.

All phase two pre and post samples had average WEMWBS scores (14 items taken together) that were within less than one point of each other (Figure 2).

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<sup>9</sup> The analysis of the phase one baseline data and comparisons between phase one and phase two baseline data is contained in the unabridged independent evaluation report<sup>27</sup>.

Figure 2: A comparison of pre and post WEMWBS average score for each sample

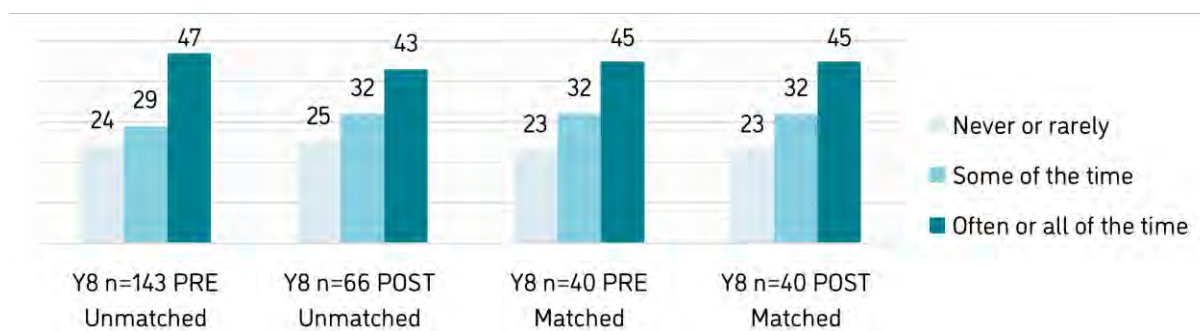


A *meaningful change* for the WEMWBS was not observed [considered a difference of three-eight points between the pre and post WEMWBS scores].<sup>28 h</sup>

Both phase two pre/post and both matched/unmatched samples were similar not only in both their average scores, but also in the frequency of responses (Figure 3).

<sup>h</sup> The national WEMWBS average score for young people aged 13-14 in England is approximately 48.8 with a Standard Deviation of 6.8.<sup>27</sup> The unmatched pre n=143 had a WEMWBS score of 46.1 and a Standard Deviation 10.9. The matched pre n=40 had a WEMWBS score of 45.9 and a Standard Deviation of 10.2. This is broadly equivalent to a recent study of mental wellbeing of 750 students in 142 schools [matched sample Oct 2019 and April/May 2020] in the South West of England which had an average score of 46.02 and a Standard Deviation of 10.68<sup>28</sup>.

Figure 3: A comparison of average frequency of responses for phase two samples [in %]



### Comparison by student for low, average and high wellbeing

Low wellbeing was taken as a WEMWBS score <36, average wellbeing as a WEMWBS score 36-48 and high wellbeing was deemed to be as a WEMWBS score >48.<sup>i</sup>

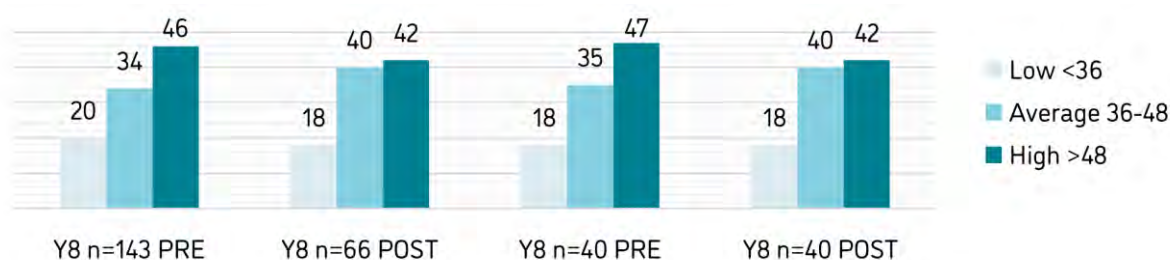
For the unmatched sample, the percentage of students with low mental wellbeing slightly decreased, while the percentage of those with average wellbeing increased and those with high wellbeing decreased.

In the matched sample, the percentage of those with low mental wellbeing remained the same. There was also an increase of those with average wellbeing and a decrease of those with high mental wellbeing (Figure 4).

<sup>i</sup> For the purposes of this evaluation, the cut-off point for low wellbeing was WEMWBS scores at or below the mid-point between 28 or 'rarely' and 42 'some of the time', i.e., 35 inclusive. Widnall et al (2020) refer to using one standard deviation below the average WEMWBS mean score for the group. In the case of the matched pre sample n=40 for this evaluation, this gives WEMWBS score of 45.9 minus the Standard Deviation of 10.2 = <35.7 and the same cut off point. In practice, this means including 35 because individual WEMWBS scores are in whole numbers and hence <36 is the criteria. High wellbeing was defined as the mid-point between 42 'some of the time' and 56 'often', i.e., 49 inclusive. Average wellbeing was numbers >35 but <49.

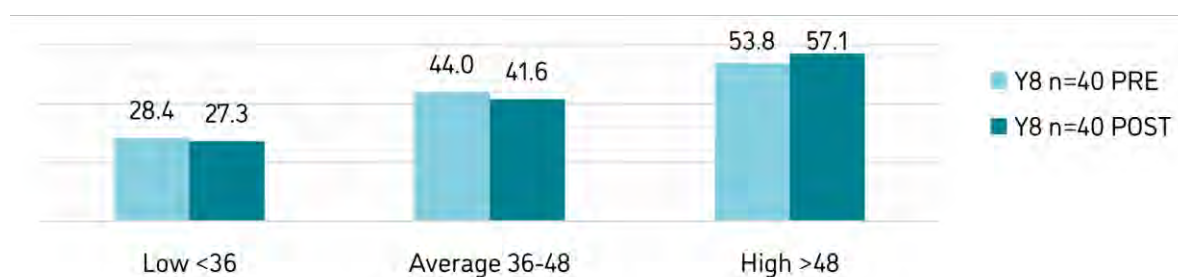


Figure 4: A comparison of the pre/post differences in the proportion of low, average, and high mental wellbeing [in %]



The average pre/post score for those with low mental wellbeing decreased by 1.1 points and by 2.4 points for those with average wellbeing. However, the average score for those with high wellbeing increased by 3.3 points (Figure 5). This suggests those with the highest levels of wellbeing benefited the most from the intervention.<sup>j</sup>

Figure 5: A comparison of the pre/post changes in WEMWBS scores for students with low, average and high mental wellbeing

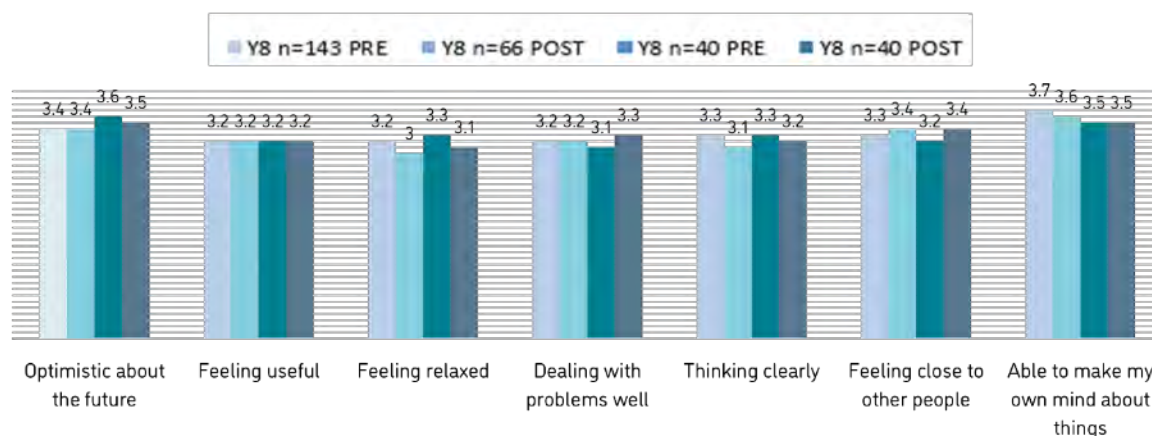


### Further comparison by WEMWBS questions

For the seven key questions, the range of responses was between 3.1 and 3.7 for the pre samples and 3.0 and 3.6 for the post samples. For the seven key questions, the difference pre/post was minimal (Figure 6).

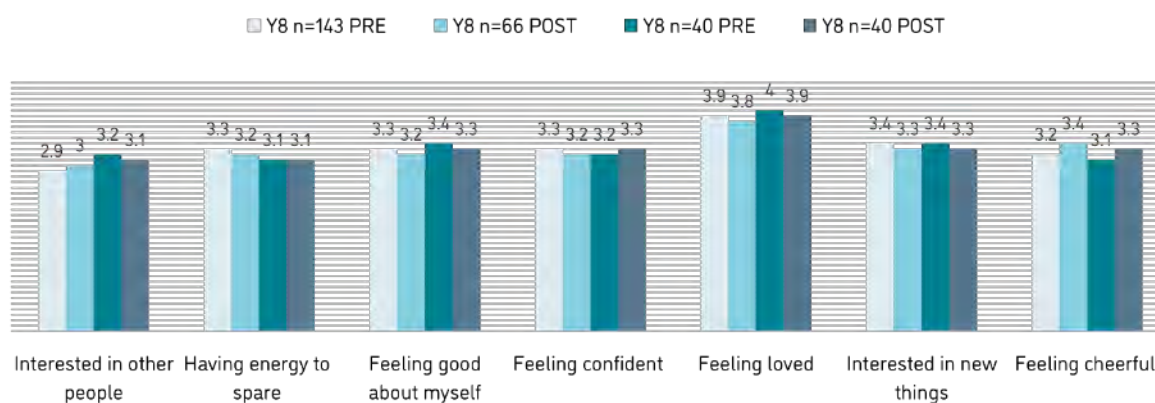
<sup>j</sup> This contrasts with Widnall *et al* (2020) who showed that those with the lowest levels of mental wellbeing (15.9%) had a 10-point increase [14% improvement] at post (during the first two months of the first Covid-19 national lockdown) while students with average-high wellbeing scores pre-pandemic (81.1%) showed no change.

Figure 6: A comparison of the average pre and post scores seven key questions in the phase two samples



For the remaining seven questions, the range of responses was between 2.9 and 4.0 for pre and 3.0 and 3.9 for post (Figure 7), and again, the difference pre and post was also minimal.

Figure 7: A comparison of the average pre/post scores for other questions in the phase two samples



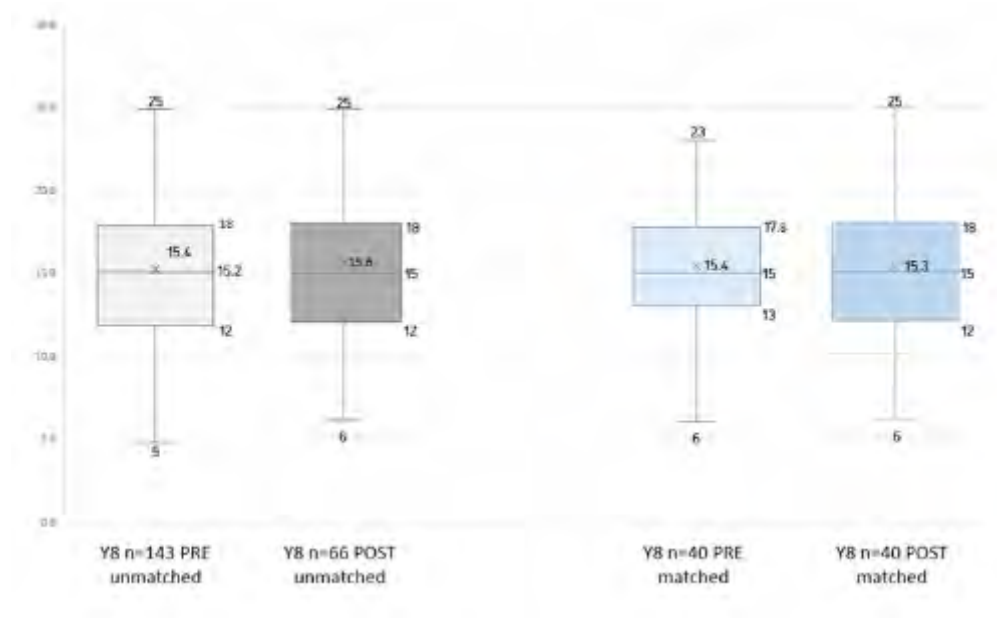
## Data reporting on MiHUB coping skills

All phase two pre/post samples, both matched and unmatched, had an overall average score of 3.1 (five items taken together). This was **lower** than the WEMWBS overall average score of 3.3, but above the mid-point of 3.0 (Table 2).

All phase two pre/post samples had average scores (scores from the five MiHUB items taken together) that were **almost the same**.

The unmatched sample had a pre/post 0.2-point **improvement**. The matched sample had a 0.1-point **lower** score at post compared to pre (Figure 8).

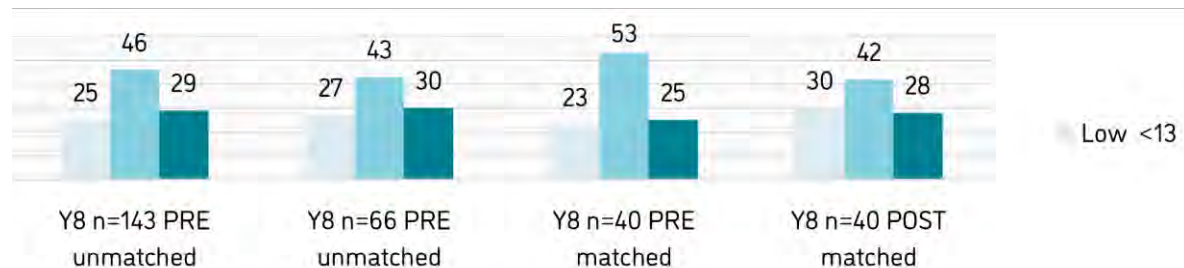
Figure 8: A comparison of average pre and post MiHUB score for each sample



### Comparison by students

Low wellbeing was taken as the MiHUB score <13, average wellbeing as a score 13-17 and high wellbeing >17.<sup>k</sup> The paired sample had a larger **increase** of students with low coping skills, a larger **decrease** of those with average skills and a larger **increase** of students with high coping skills, suggesting an overall drop in coping skills for the paired sample (Figure 9).

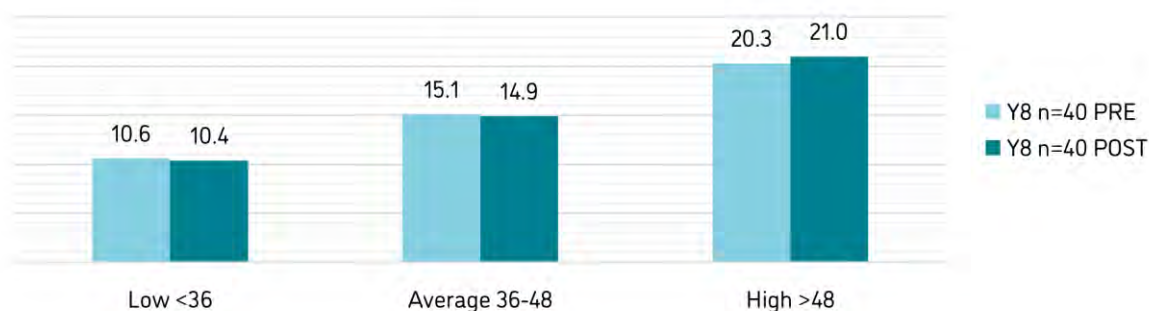
Figure 9: A comparison of the pre/post differences in low, average and high MiHUB coping skills (%)



<sup>k</sup> For the purposes of this study, the cut-off point for low coping skills was defined as the MiHUB score at or below the mid-point between 10 or 'rarely' and 15 'some of the time', i.e., 12 inclusive, hence the criterion is <13 as 12.5 is not a whole number. High wellbeing was defined as at the mid-point between 15 'some of the time' and 20 'often', i.e., 18 inclusive. Average wellbeing was numbers >12 but <18.

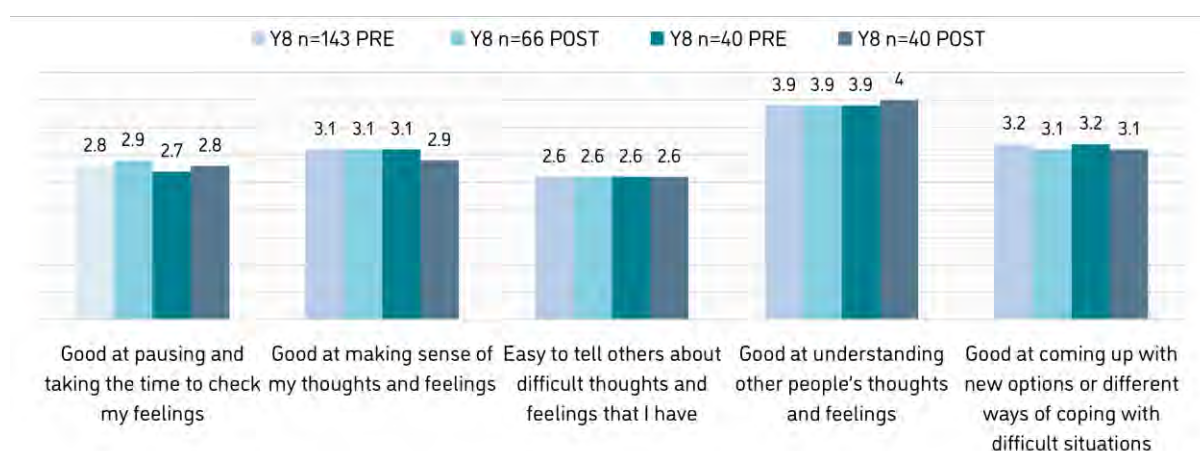
In the paired sample, the average score pre/post for those with low and average coping skills **decreased** by 0.2 points. The average score for those with high coping skills **increased** by 0.7 points. Those with already high coping skills improved them slightly. This could suggest those with existing low or average coping skills may benefit from additional targeted support for this coping skill, alongside MiHUB (Figure 10).

Figure 10: A comparison of the pre/post changes in overall MiHUB scores for students with low, average, and high coping skills for the matched Y8 sample n=40



Higher averaged scores were seen for being better at *understanding other people's thoughts and feelings* (where 4= often experiences this) in the pre/post responses for **both** the matched and unmatched samples. However, **no change** was seen in answers from respondents from across the whole sample for *telling others about difficult thoughts or feelings* (where 2= rarely experiences this), identifying an additional skill that may need further development.

Figure 11: A comparison of the average scores for the pre/post MiHUB items in the phase two samples



## **Free text responses**

Free text responses within the mental well-being and reflective and coping skills surveys provided additional insight. Only a very small number of students made free text comments on the two surveys. The key points raised were describing problems they encountered (anxiety about family and school). The comments provided no information about the extent to which students had improved their mental wellbeing, resilience, reflective and coping skills or enabled greater self-awareness and confidence. However, the MiHUB pre-survey in phase two helped identify students who needed and were provided with additional external support by the school.

There were also free text responses at the end of the MiHUB guides. The two (out of four) students who made comments of a non-technical nature about MiHUB showed the same pattern of some improvement and no improvement cancelling each other. One comment acknowledged that MiHUB was surprisingly helpful and one commented that it made 'me bring out more emotions and didn't really make me feel better'.

## **Results for secondary objective (1)**

To identify the patterns of engagement of students with the MiHUB project and its benefits/limitations.

### **Frequency of student access to MiHUB**

As MiHUB usage is anonymous, only the number of visits is recorded. It is therefore not known who accessed MiHUB, how many visits were from unique visitors, or whether MiHUB was accessed from school or from home. Visits could have been from a small number of dedicated students who used it many times or from a larger number of students who only used MiHUB once or a few times.

The MiHUB approach of anonymity of usage has been a limiting factor on making warrantable claims about the impact of MiHUB within this evaluation, in particular the extent of reaching the targeted group. However, not requiring a student to register on the system (and thus creating anonymity) is known to lead to increased openness, disclosure and trust in the system by young people. It is also worth noting that anonymity was identified by phase one participants as a benefit/advantage in the use of MiHUB (Table 3). This approach also significantly reduces the risk of data privacy issues.

In the discovery and design of phase one between the first workshop in late January until late March 2020, MiHUB was accessed 542 times. When workshops and development testing are taken into account, MiHUB was accessed 303 times, approximately seven hits daily (Figure 12). This would have been across a range of Years 7-9 students.

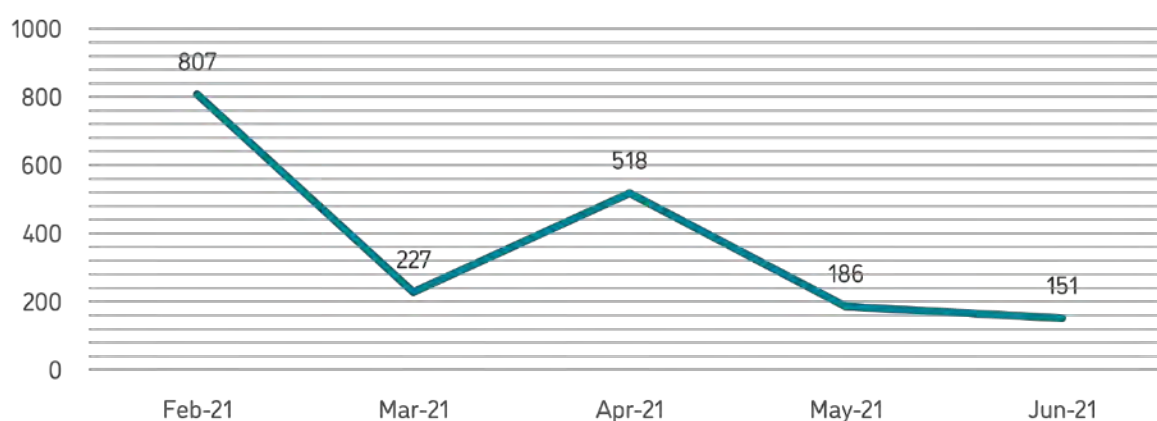
Figure 12: Patterns of student access to MiHUB phase one [maximum sample n= 75]



During phase two, students of keyworkers were present in school and could access MiHUB, but for the remainder of participants it was accessed from home. Between the pilot rollout on 23 February 2021 until the end of June 2021, MiHUB was accessed 1,889 times or 15 visits per day on average.

Visits decreased over time as MiHUB was used a lot more in the first 38 days [1,034 visits – daily average 27 with 135 daily in the first six days] than in next 90 days [855 visits – daily average 10]. Just over half the visits [55%] were in the first 38 days (Figure 13).

Figure 13: Patterns of student access to MiHUB phase two [maximum sample n=250]



### Usage intention, preferences and real-world usage of MiHUB

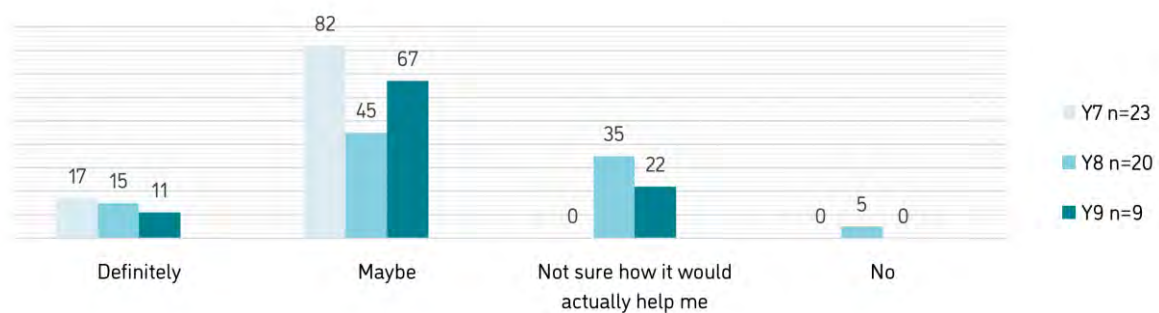
The Covid-19 pandemic had significant impact on measuring intended usage versus real-world usage. In phase one, Years 7-9 students had used MiHUB during workshops, individually until the discontinuation of the MiHUB link at the start of the first UK national lockdown (March 2020), when schools were closed.



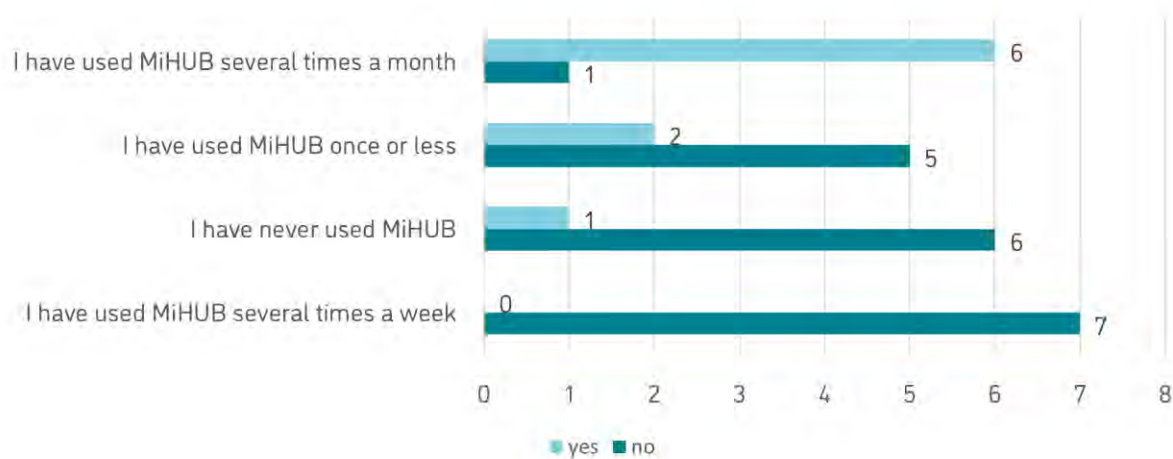
Real-world usage in phase two had been introduced to MiHUB through their form tutor in early 2021. Whilst direct data comparisons cannot be made, phase one participants indicated that the large majority intended either maybe or definitely using MiHUB. A smaller proportion indicated they were not sure how it would actually help them (Figure 14).

By comparison, self-reported real-world data from the Year 8 phase two focus group showed that respondents had predominantly used MiHUB several times over the course of a month. No-one reported using it weekly (Figure 15).

**Figure 14: Intention of using MiHUB according to phase one samples at Workshop 1 [in %]**



**Figure 15: Real-world usage after three months according to phase two Y8 sample [n=7]**



### Ways of accessing MiHUB

There was a lack of consensus in phase one respondents on the ways they would want to access MiHUB. Approximately two thirds of Years 7 and 8 preferred access via a laptop rather than phone or tablet (phone was not an available option).

Three quarters of Years 7 and 9 noted they would prefer using MiHUB on their own (rather than with friends or family). Year 7 predominantly wanted to use it at home (70%), and Year 8 mostly wanted to use it at school (80%). This diversity suggests that MiHUB should be available through different mediums, and, where appropriate, available through a range of settings if maximum uptake is a desired outcome.

Real-world findings (n=6) from the Year 8 cohort found all six respondents accessed via a laptop, with two noting they would have used it more if it had been accessible by smart phone.

Five out of six respondents who did use MiHUB did so at school (83%) and only one at home (17%). All six students used MiHUB on their own (100%) rather than with someone else.

### **Engagement with the MiHUB guides**

In phase one a total of 47 students had tried out at least two structured self-help guides during the two workshops and some then accessed MiHUB, suggesting they may have tried out more guides. Almost three quarters of Year 7 students (72%) found the guides useful. In contrast a minority from Year 8 (38%) reported the guides as useful. This further reduced in the combined Year 9 student groups, where only a third found the guides useful.

In phase two, the five students in the focus group who used MiHUB, only used the unguided My Space (Story-Telling landscape), rather than the more structured self-help guides. Only one student used the structured guides once and did not like them, so went back to using the unguided "My Space world."

### **Benefits and limitations of MiHUB**

- **Student perspective on educational or other impact, acceptability and value-added of MiHUB**

In phase one, all students found the workshops easy to follow and that participating in the workshops was a valuable experience. Younger cohorts (Y7 and Y8) felt they learnt a lot during the workshop, compared to Y9, who reported they did not.

Self-reported real-world feedback from phase two Year 8 participants in the focus group (n=6) found that using MiHUB had not increased their knowledge and understanding of mental health, but that using MiHUB had a positive effect on wellbeing and resilience. Students said:



*"Helps with feelings; you can tell your own story, can help make you feel better because you have made more sense about things that happened and have a better perspective; you are completely independent; and very helpful for people with problems."*

- **Advantages and restrictions of MiHUB**

Similar themes for the benefits and limitations of MiHUB were identified by both phase one and phase two respondents. There were differences between the Year groups. Year 9 respondents in phase one placed less emphasis on creativity, expressing feelings and dealing with problems as an advantage of MiHUB. This group were also not as concerned about a lack of customisation as a restrictive factor.

However, Y7 and Y8 in phase one placed greater emphasis on these benefits, suggesting that these students were possibly more engaged with MiHUB project early on in phase one than Y9 students (Table 3).

As a consequence of the feedback in phase one, the innovator ProReal improved the 'lagginess' of the graphics when in full screen, simplified the introduction to the guides and the content of the guides, provided video instructions for the guides, introduced additional landscape and scenery elements i.e., *Story Telling Landscape* (castle, tower), and designed additional guides.

**Table 3: Advantages and restrictions of MiHUB**

Phase one: Benefits and limitations	Phase two: Benefits and limitations
<b>Main advantages</b> <ol style="list-style-type: none"> <li>1. Enabling creativity and being customisable</li> <li>2. Helping articulate feelings and overcome problems, including seeing things from different points of view</li> <li>3. Anonymity and ease of use</li> </ol>	<b>Main advantages</b> <ol style="list-style-type: none"> <li>1. Enabling creativity and being customisable</li> <li>2. Complete freedom and independence to create scenarios from scratch and make adjustments</li> <li>3. Facilitates dealing with problems and overcoming challenges</li> </ol>
<b>Main restrictions</b> <ol style="list-style-type: none"> <li>1. Restricted customisation at all levels</li> <li>2. Lagginess and glitchiness</li> <li>3. Controls difficult to use and unrealistic interactivity</li> </ol>	<b>Main restrictions</b> <ol style="list-style-type: none"> <li>1. Limited customisation within settings</li> <li>2. Lagginess and glitchiness</li> <li>3. Controls quite hard to use making navigation difficult</li> </ol> <p><i>In some games, the movement is inverted left and right, the controls are fixed and</i></p>

<i>Flat textures of all the objects, can walk through buildings and no collision mechanics</i> 4. Meanings of props unclear 5. Characters not interacting with each other 6. Having to invent scenarios and facing issues	<i>inverted up and down, but only for some games</i> 4. Being alone with a lot of space around can be very isolating
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During the phase one workshops, the innovator team emphasised that MiHUB was symbolic, allowing users to focus on emotions and reflection and in no way aimed to be realistic in terms of landscapes, weather, settings, or objects. However, students wanted MiHUB to be more realistic with weather reflecting mood and more like a video game or even an exercise in dramaturgy and film making.

- **School staff perspective on educational or other impact, acceptability and value-added of MiHUB**

Staff provided feedback in both phases one (n=6) and two (n=3). Phase one feedback led to discussions about the various options for delivery models both one-to-one and for one or more age groups. From here, the introduction to MiHUB during Tutor Time and reflective sessions in Tutor Time after three and five weeks was selected. This would have been piloted but was persistently delayed by Covid-19 restrictions. The introduction was piloted at the end of February 2021 during Tutor Time and independent usage by students from within school or home.

The absence of reflective sessions (after MiHUB was made available to students), meant staff did not have real-time feedback on how the students had used MiHUB, which in turn made it difficult to promote benefits of MiHUB to students, other staff and parents. There is an opportunity for learning from this evaluation to be fed back to participating schools on how students have interacted and used MiHUB, and to aid school staff with future delivery.

**Table 4: Benefits and limitations according to key members of the school staff**

Phase one: Benefits (perceived prospectively)	Phase one: Limitations (perceived prospectively)
<ul style="list-style-type: none"> <li>•Fantastic new software</li> <li>•Students likely to engage well with something based on animation or programming</li> </ul>	<ul style="list-style-type: none"> <li>•Best kept for occasional use (similarity of scenes) to initiate conversations or look at things from a different perspective</li> <li>•If used regularly or en-masse students likely to get bored</li> </ul>

<ul style="list-style-type: none"> <li>• Helpful to both students and staff (counselling, pastoral care or mentoring support and student managers) on a one-to-one basis (role play, initiating discussion, processing their thoughts and feelings and reflect on their behaviour)</li> <li>• Help with academic assessments and resolve petty friendship issues</li> <li>• Another outlet for students to explore and express feelings to mitigate poor mental health [individual usage for many]</li> <li>• Students select items/places/ colours to facilitate articulating and resolving issues will also be helpful in future [pre-set profile]</li> <li>• A useful tool to support the i-Learn 8-week mental health programme for Y7</li> </ul>	<ul style="list-style-type: none"> <li>• School staff wanted to see the scenarios created by students and pre-set profiles to be able to take necessary safeguarding steps, should the need arise</li> <li>• Students would need to familiarise themselves with MiHUB to work out how to 'set things up'</li> <li>• School staff need understanding and familiarity with MiHUB i.e., be trained and able to reflect on potential limitations before taking decisions based on using MiHUB one-to-one with students</li> <li>• Not sure about the potential of MiHUB to improve resilience (but anything to help mitigate poor mental health is worth looking at)</li> </ul>
Phase two: Benefits – three months after rollout	Phase two: Limitations – three months after rollout
<ul style="list-style-type: none"> <li>• Additional resource available as part of the Skills for Life initiative with PPT introduced by Form Tutor during usual Tutorial Time</li> <li>• Students to decide for themselves when, how and how often they want to access MiHUB so needs minimal input from school staff for something that might be useful for students and help mitigate poor mental wellbeing</li> <li>• MiHUB pre survey helped identify students who might need possible additional external support [two students referred to Child and Adolescent Mental Health Services]</li> <li>• School even more attuned to mental health and paying closer attention to what students say about mental health, which could be in part due to MiHUB (as well as Covid-19 and other School initiatives to enhance mental health)</li> </ul>	<ul style="list-style-type: none"> <li>• Only offered as additional resource and hence not integrated into the school curriculum</li> <li>• Students may not have been made aware of key information and expectations</li> <li>• Students may not feel that MiHUB is valued by their form tutors or teachers</li> <li>• School staff do not know much about MiHUB or about how students have used it</li> <li>• Not enough is known about MiHUB to promote its benefits within the school and to parents</li> </ul>

## Results for secondary objective (2)

To assess the extent to which the MiHUB project could become routine practice within the school (e.g., drivers, barriers, pathway changes necessary to integration within the curriculum, existing pastoral care system, including counselling and other Mental Health initiatives and clinical pathways).

### Drivers and barriers to implementation – students

Drivers and barriers have been inferred from the benefits and limitations underlined by students, and there were some identified as both driver and barrier.

#### Drivers

The option of free roaming was deemed a key benefit by students and seemed to have acted as a key driver in students using MiHUB.

The sustained focus of students in their requests for less limited customisation and their detailed suggestions for improvement to MiHUB indicate a direct engagement with MiHUB to the extent that an unintended consequence is that MiHUB may have boosted the creativity and critical reasoning of students. This is evidenced by the volume of ideas put forward to improve MiHUB, in order to better reflect mood. They seemed to consider creating scenarios from scratch as a video game or even an exercise in dramaturgy and film making.

MiHUB was experienced by some phase two students as being alone with a lot of space around, which was reported as being very isolating. Whilst this could be seen as a barrier, it could be mitigated by having animals and pets as companions and was also suggested during phase one. Phase two students wanted MiHUB to send them on quests and adventures so they could solve problems for themselves and others, by learning to do conflict management. A Health Bar was suggested where you can go for advice on how to boost up or power up resilience and increase confidence or top up whatever skills you need to improve. It was also suggested that the school could use MiHUB as part of a Personal Development Day.

#### Barriers

Barriers were also linked to the delivery mode, in that students may not have been aware of key information and expectations about MiHUB. Students in the focus group were unaware of the links to resources from the MiHUB platform. The lack of integration into the school curriculum and suggestion that the school use MiHUB as part of a Personal Development Day may have led to students feeling that MiHUB was not valued by their Form Tutors or school staff.

Limited customisation was also underlined as a key restriction in both phase one and two. Most of the suggestions for improvement focussed on more customisability and more options for settings, landscapes, scenery, objects, weather, seasons and music with additional requests during the focus group for weather elements such as clouds, rain, mists, volcanoes and earthquakes, as well as time of day and seasons to better reflect mood.

The purpose of MiHUB is to enhance cognitive, emotional and social skills starting by identifying, articulating, communicating and resolving difficult and complex thoughts and feelings to enable reflection, greater self-awareness and new perspectives to help overcome problems. In response to requests for greater customisation during the phase one workshops, the innovator team emphasised that MiHUB was largely symbolic and in no way aimed to be completely realistic in terms of landscapes, weather, settings, or objects and collision mechanics.

ProReal explained to students in phase one that their feedback about greater customisability and more realistic details of everyday life could not be taken into account, as it was contrary to the purpose and symbolic element of MiHUB and ProReal technology.

It was recognised by the project team that the latest online virtual reality games used by children and young people are very realistic and can make MiHUB appear clunky and non-intuitive by comparison, especially for students who are dedicated users of such games. Whilst not a direct limitation of MiHUB, this might act as a barrier to sustained uptake.

### **Drivers and barriers to implementation – school staff**

Drivers and barriers have been inferred from the benefits and limitations underlined by school staff in phases one and two.

#### **Drivers**

- i) A key driver for staff in phase one was that MiHUB could be used in many ways within the school. It was seen as another outlet for students to explore and express feelings to mitigate poor mental health. It was also identified as beneficial for both students and staff to initiate discussions about processing of thoughts and feelings and to enable reflecting on behaviour, particularly overcoming anxiety over academic assessments and resolve petty friendship issues.

- ii) MiHUB (ProReal software) was a key driver in both phases one and two. Due to being 'novel' to the participants and based on 'animation or programming' MiHUB was deemed likely to engage students well in both phases one and two and enabled articulating and resolving of issues in phase one.

## Barriers

- i) If MiHUB was used too often, the likelihood of student boredom was highlighted as a key barrier during phase one, although this was not reported by pupil participants. Staff suggested students were likely to get bored due to the 'similarity of scenes'. Their preference was therefore for occasional usage by students on a one-to-one basis to start conversations about looking at things from a different perspective.
- ii) Investment in time and training resources for both students and staff to understand MiHUB as a key barrier in phase one. Staff identified a need to better understand the processes of decision-making before taking decisions based on having used MiHUB in one-to-one discussions with students, and this may require additional training for them to activate in this way.
- iii) School staff wanting access to scenarios and data entered by students for safeguarding reasons as a key barrier in phase one. Staff wanted to see the data entered and the scenarios created by students when used one-to-one, in particular the pre-set profiles. The rationale for this was to be able to take necessary safeguarding steps, should the need arise.

Unfortunately, this is not congruent with the purpose and the way in which the MiHUB platform is set up. Data entered on MiHUB by students is both anonymous and confidential and is not stored, something students highlighted as a benefit/advantage. Students need to save their work in a file and keep a copy of it and can save their scenarios, print or share them with others. If MiHUB was supporting students in pastoral care contexts, they could be encouraged to do this to maximise the benefit.

Qualitative data showed phase one staff had mistaken assumptions about MiHUB. These were more likely to happen if the staff member missed the introductory session about MiHUB that was given to teachers during the MiHUB launch. Different members of staff provided feedback in phases one and two. In phase one, staff were counselling, pastoral care staff and student managers who thought that MiHUB would be best used as occasional support to one-to-one interactions of a counselling or pastoral care nature. The finalised MiHUB delivery model was made available via form tutors as a resource that students could use independently with no supervision, no debriefing session and no reflective sessions.

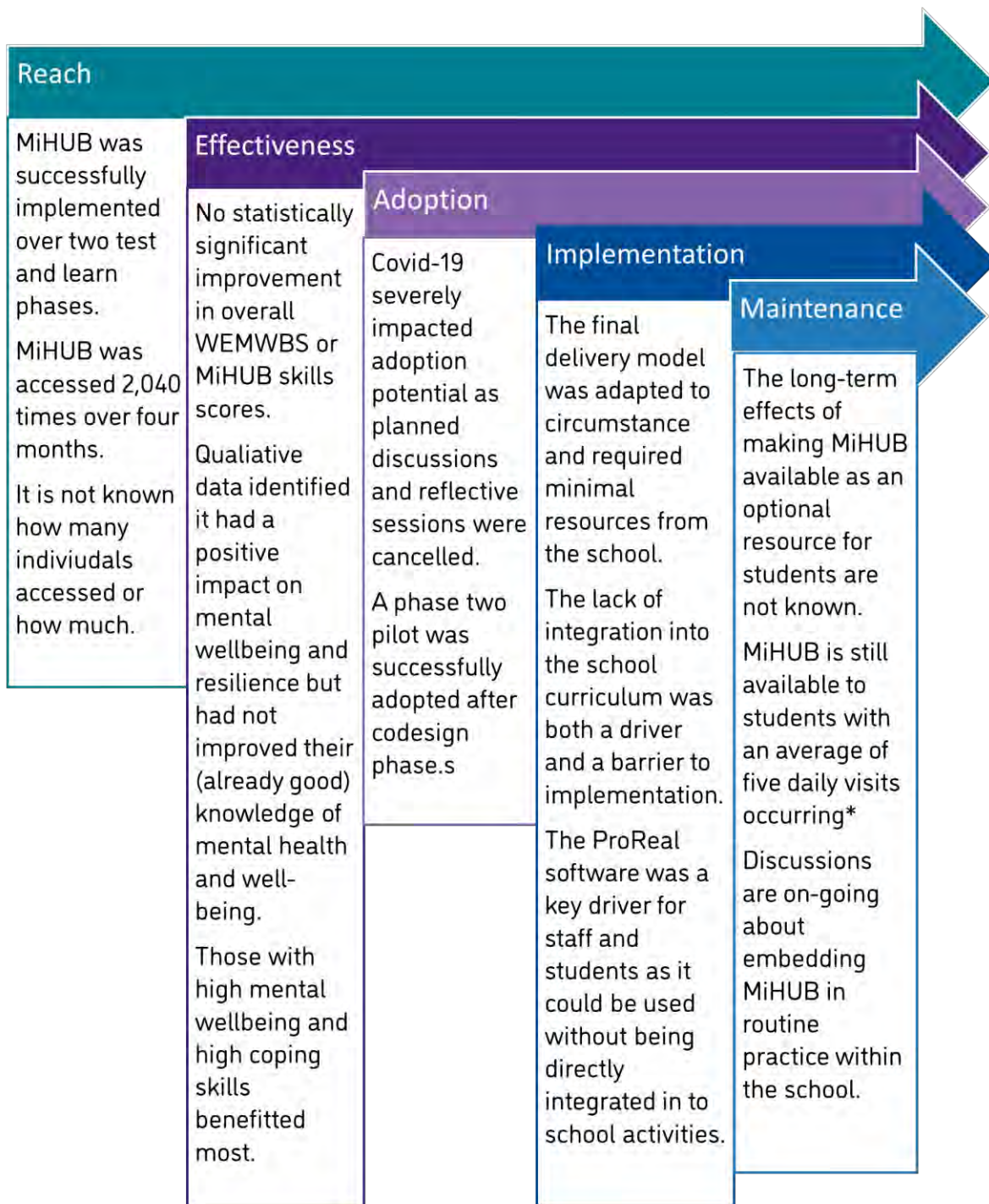
Those students took the opportunity to underline concerns in the pre mental wellbeing and coping skills survey were offered additional support offered and referrals to CAMHS.

- iv) Staff were not sure about the potential of MiHUB to improve resilience and this was a key barrier in both phases one and two. Due to a staff perception of widely spread low mental wellbeing, they believed that anything to help mitigate poor mental health was worth consideration, rather than a belief in the value of the specific innovation. To be activated advocates staff must understand the benefits of the innovation.
- v) Once MiHUB was available as an additional resource, to be used independently by students with minimal introduction (via PowerPoint slides) in phase two, it was identified as both a barrier and a driver. As an enabler, the rationale for this came from students identifying the benefit of deciding when and how often they wanted access, and the school paying closer attention to pupil narratives about their mental health.

As a barrier, staff did not know how much students had used MiHUB and this caused uncertainty. Added to which, not enough was known about MiHUB and its impact to promote its benefits within the school and to parents.

Key learning outcomes for project data are summarised using the RE-AIM conceptual framework in Figure 16.

Figure 16: Summary of the key outcomes demonstrated from the project implementation using the RE-AIM conceptual framework.





## Limitations of the evaluation

### Adaptations due to Covid-19

As outlined earlier, the Covid-19 pandemic had a substantial impact on the project delivery and its evaluation due to government lockdowns and extensive school closures during the academic year. After the onset of Covid-19, project activities were further modified in line with pandemic restrictions, affecting school timetables and routines. Some data collection was cancelled, rollout was delayed between the developmental / co-design stage and pilot rollout. When the pilot commenced with reduced sample size, the implementation had been adapted again to account for home-schooling and reduced teacher contact time.

The evaluators were unable to capture the depth of richness from qualitative approaches in the school setting after focus groups were cancelled in phase one, which would have provided greater insight to the patterns of engagement and acceptability of MiHUB; all of which would have helped to inform phase two implementation. The pilot in phase two subsequently positioned MiHUB as an independent resource, introduced via PowerPoint and form tutors.

In phase two, collection of meaningful qualitative data from students and school staff was inhibited by the Covid-19 adapted delivery model. This led to a much smaller number of students taking part in the focus group as they did not want further disruption to their academic progression. A smaller number of tutors also gave feedback, with a more limited knowledge of how students had used MiHUB.

The lack of post data for the mental wellbeing and coping skills in phase one and the small size of the samples in phase two were limitations. Just over half of the students in phase two completed the pre survey (during the second lockdown) with only a quarter completing the post survey three months later, giving a matched sample of only 40 students out of a potential 250. Greater samples in phase two would have potentially provided more conclusive results.

Ultimately the impact of Covid-19 in this setting remains unknown and may well have decreased overall student wellbeing and resilience including their coping skills. It is possible that the results reported may be skewed given all the challenges the project team faced in developing and implementing an ambitious project at this time. This is acknowledged as a limitation of our findings and as such, it is hard to make warrantable claims about the effectiveness or otherwise of MiHUB on achieving the primary objective of the evaluation.

### Limitations of the innovation

MiHUB is not set up to track usage as only the number of visits is recorded. It is not known how many students have accessed MiHUB and how many times. However, this feature is carefully balanced with user anonymity, which was also identified by participants as an important component for user acceptability.

### Limitations of implementation

Interventions and evidence-based practices that are poorly implemented do not produce expected health benefits. Even when effectively implemented, interventions still might not produce expected health benefits if effectiveness is lost during implementation, or if the intervention was never effective in the first place. In phase two, students were minimally introduced to MiHUB to be used independently, with no reflective sessions during tutor-time, rather than it being integrated within school activities. The impact of the Covid-19 pandemic will no doubt have affected outcomes in this project, and assumptions underpinning the original logic model / theory of change.

As a real-world validation, this was an uncontrolled open study establishing feasibility and proof of principle; as well as gathering some data on impact and investigating drivers and barriers to implementation. The piloting of MiHUB was to have originally been in the context of MiHUB integrated within the school curriculum and not made available to all form groups; this would have allowed for meaningful comparison with a suitable control group and the implementation mechanisms.



## 6. Conclusion

The impact of Covid-19 was such that no meaningful conclusion could be drawn on MiHUB at this time, and further data should be collected to properly evaluate the impact of the intervention once schools have returned to usual routines. The overall pre/post-intervention data analysis shows there was no significant difference in either overall mental wellbeing or MiHUB coping skills.

However, despite changes in the delivery model, the small sample size, and extended school closures due to two national Covid-19 lockdowns, MiHUB was deemed acceptable and worthwhile by students who identified benefits and limitations. Because there was no statistically significant change in mental wellbeing and coping skills in the matched sample of 40 students, no warrantable claims can be made at this time, as evidence of positive impact was limited.

It is noted that those students with high coping skills had improved them slightly. Yet this was not repeated post intervention for those with low or average coping skills where a decrease was observed; suggesting that these lower-coping groups may benefit from additional targeted support to enhance or develop their coping skills in MiHUB. Similarly, no change was seen in answers from respondents from across the whole Year 8 sample for *telling others about difficult thoughts or feelings*; again, identifying an additional skill that may need further targeting by the innovation team.

The students who took part in the focus group also agreed that MiHUB did have a positive impact on their mental wellbeing but had not increased their knowledge of mental health issues (which was already well-developed). MiHUB also appeared to have engaged students and enhanced their creativity and critical reasoning.

Staff remain critical actors in the implementation of school-based prevention programmes. Through recent national policy, schools have been encouraged to create the role of designated senior lead for mental health, with a rolling programme of training being envisaged for this role.<sup>3,4</sup> If it is accepted that there is a rationale<sup>5,10</sup> for schools to be able to support young people in developing and enhancing the tools needed to cope with life and potential mental health difficulties,<sup>11</sup> then embedding innovations, such as MiHUB, within PSHE lessons, aligns with guidance and lessons on teaching about mental health and emotional wellbeing<sup>13</sup> and offers new, innovative technology to support this goal.

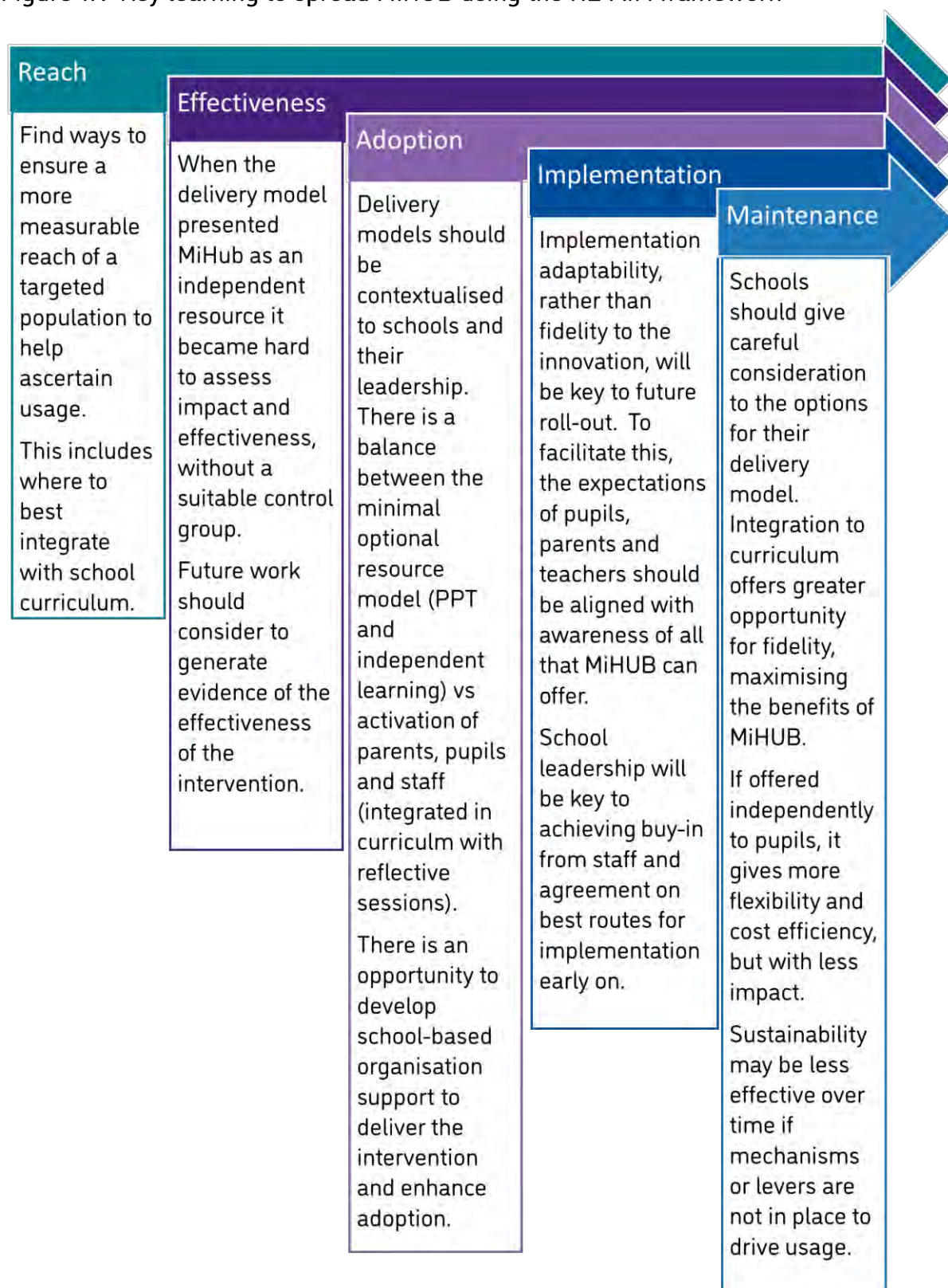
Staff concerns about safeguarding should be addressed early in implementation (children and young people highlighted confidentiality as a benefit), and there should be appropriate training to address any underpinning staff assumptions that an intervention is not going to work, as these will undoubtedly effect implementation success (such as that students would get 'bored' of MiHUB). Staff were not sure about the potential of MiHUB to improve resilience and this was identified as a key barrier. Due to a staff perception of widely spread low mental wellbeing, they believed that anything to help mitigate poor mental health was worth being considered, rather than a belief in the value of the specific innovation. To be activated advocates staff must understand the benefits of the innovation.

Good implementation of an effective programme is essential to delivering expected or intended outcomes. The use of the RE-AIM framework in this evaluation has identified important learning for future implementation of MiHUB in secondary school settings (Figure 17). There is an opportunity for learning from this evaluation to be fed back to participating schools on how students have interacted and used MiHUB, and to aid school staff with future delivery.





Figure 17: Key learning to spread MiHUB using the RE-AIM framework



## Potential for the future and next steps

The MiHUB project has been an example of a multi-partner real-world validation and evaluation. It has provided an opportunity for a larger number of students to experience the MiHUB platform and its ten structured self-help theme-based guides. Further evaluation should be undertaken focussing on reach, effectiveness (more data about its potential impact on the mental wellbeing and coping skills of students), adoption, implementation and maintenance of MiHUB.

This project has provided an opportunity for and has demonstrated, effective collaborative working across Integrated Care System inc. NHS organisations and industry, resulting in key learnings for future partnerships.

- The West of England AHSN Industry and Innovation team will continue to support ProReal Ltd to further explore opportunities for:
  - Further evaluation of how young people use MiHUB
  - Cost-benefit evaluation
  - Different commissioning models for this type of intervention
  - Further refining the MiHUB value proposition and delivery model for schools
  - Development of a business case
- Based on the experience of the MiHUB project, Royal Wootton Bassett Academy is planning to run MiHUB within other year groups. This is a promising and exciting result of the project and ProReal look forward to supporting the school as an ambassador for this initiative. The West of England AHSN will continue to take an interest in the development of this intervention and will be keen to hear longer term feedback from the students, school staff and ProReal.
- Parent and teacher attitudes towards the project suggest that structured communication between the school, the innovator and supporting organisations from the outset of the project, and throughout, could lead to a greater benefit to the children involved.
- Follow up of the continued use of MiHUB within Royal Wootton Bassett Academy, including assessment of greater integration within the school.
- Evaluation of a more structured delivery model more closely integrated into the school curriculum to further evidence the benefits of MiHUB.

- The original ambition for MiHUB to be integrated within the school curriculum and subsequently be part of a care pathway for students referred to CAMHS needs to be explored, as this was not possible during this evaluation.
- The innovator has reported that since the project completed, the technology has been adopted by a youth counselling charity and a provider of online services for young offenders.



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# The Future Challenges

## Young People and Mental Health: MiHUB



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