

*Learning by doing: A Practical Workshop
on Prototyping Targeted Processes of
Change for digital Intervention Design*

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Disclosures

- Dr. Vasilis S. Vasiliou:
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3 CBS-related groups

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School of Applied Psychology, University College Cork



UCC

University College Cork, Ireland
Coláiste na hOllscoile Corcaigh

Department of Psychology, University of Cyprus



University
of Cyprus

**CONOR'S
LINEHAN
VIRTUAL
AND
MENTAL
PRESENCE**





Learning outcomes

- (a) understand
 - The participatory user centred design process, and the advantages it can bring to intervention design
- (b) apply
 - an iterative paper-based prototype method for translating functional requirements into digital artifacts
- (c) utilize
 - techniques to evaluate (test) low and medium fidelity prototypes to guide their digital intervention design

Agenda



Part I: Design in process-based therapies



Part II: Hands-on examples- turning processes of change into digital interventions



Part III: Prototyping processes of change procedures in PBT



Part IV: Your prototypes

***THE UTILITY
OF THIS
WORKSHOP***





Part I: Design in process-based therapies

- What is design?
- Why design is important for process-based therapies?
- Where can we use design in PBT?

...ance based p... f cha...

1. Contingency management

2. Stimulus control

3. Shaping

16. Mindfulness

4. Self-management

16. Enhanced motivation (MI)

8. Exposure strategies

9. Behavioral activation

15. Values choices and clarification

5. Arousal reduction

6. Coping and emotion regulation

7. Problem solving

10. Interpersonal skills

11. Cognitive reappraisal

12. Modifying core beliefs

13. Cognitive defusion

14. Psychological acceptance

What CBS intervention developers typically do?

```
graph LR; A[Selection of processes] --> B[Identification of the techniques galore]; B --> C[Design features];
```

Selection of
processes

Identification of
the techniques
galore

Design
features

What CBS intervention developers should do!



Frameworks to identify targeted processes of change

- Idionomic network of the process of change assessment (Ciarrochi et al., 2022)
- Behaviour Change Wheel and BCT taxonomy (BCW; Michie et al., 2014)
- Intervention Mapping (IM; Bartholomew et al., 2016)
- Person-based Approach (Yardley et al., 2015)
- Theoretical Domain Framework (TDF; Atkins et al., 2017)
- Users (human) centered design (UCD)

Design is about ~ Users' Experiences



Identify :

the desired emotional and sensory touching points where the subjective experience of users is shaped

How well people understand, feel, and engage with the experience (not the service!)



Move away:

From designing "systems", "pathways", and "processes" and make some room for the "*users' experience*" concept

[same for PBT- Idiographic approaches]

Design is about ~ users' emotional reactions



Understand users' experiences :

Physically, sensually, cognitively,
Kinetically, Aesthetically



Elicit :

Emotional reactions



*How good design
helps digital
psychological
interventions?*

Enhance creativity in delivering methods

(Van Velsen et al. 2013)

Increase users' satisfaction

(Hong et al., 2017)

Increase retention rates

(Karekla et al., 2019)

Improves outcome efficacy and effectiveness

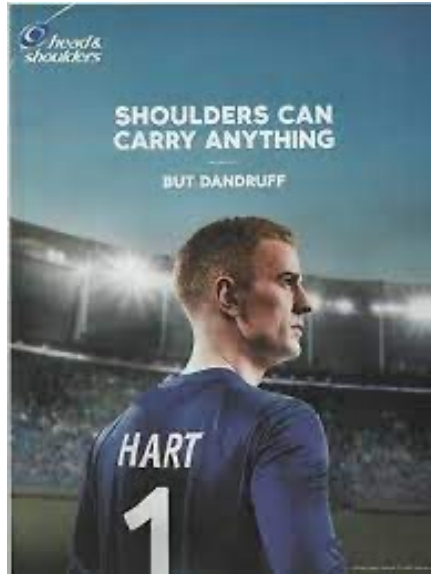
(Mohr et al., 2017)

Reach culturally diverse and broad segments of the
populations

(Bennett et al., 2009)

Design from a CBS perspective

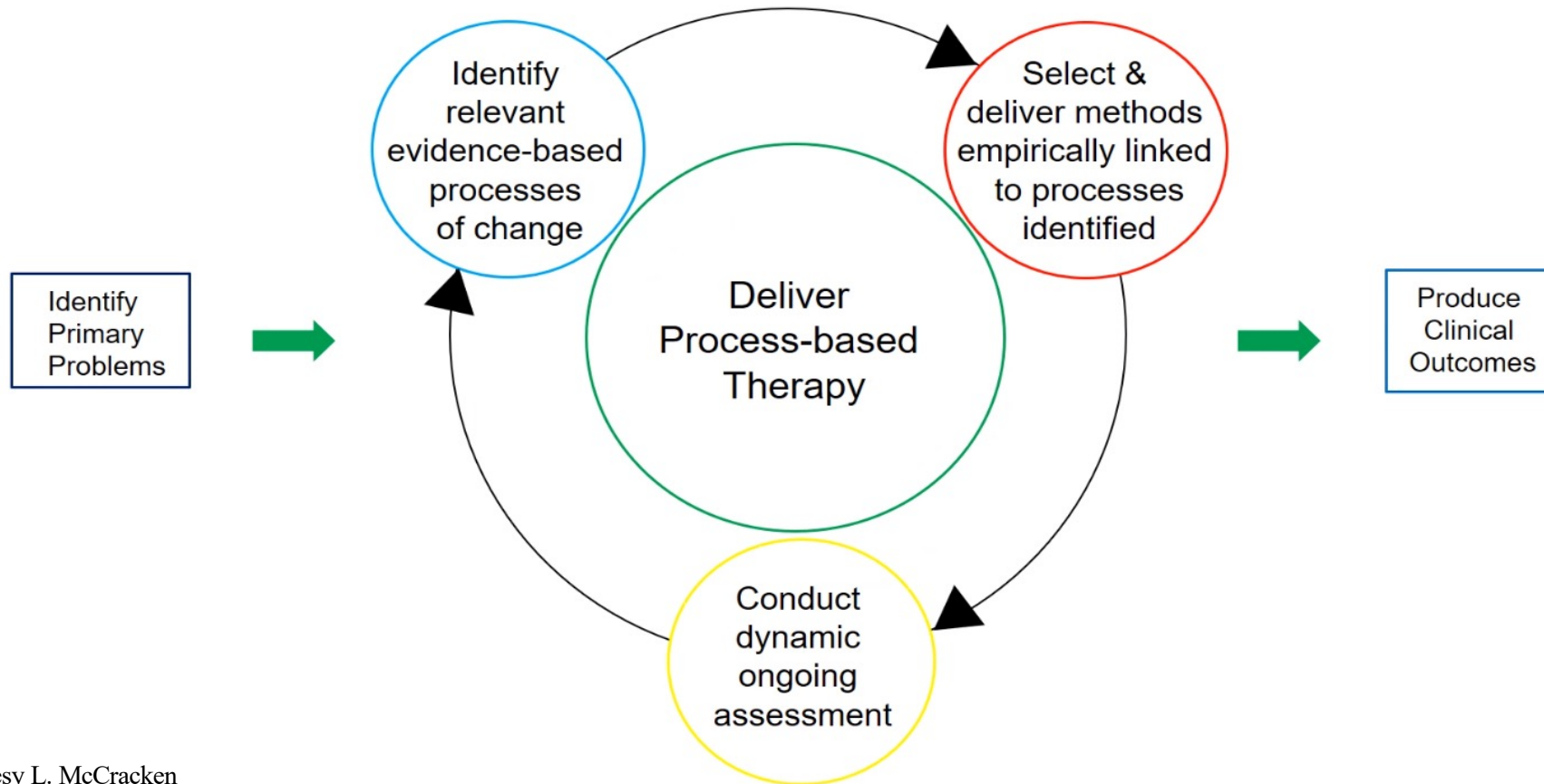
- Motivate people to:
 - become more mindful of their daily experiences
 - be in the present moment when making choices and.....when using an app/ digital intervention
 - build mindfulness into everything we do as clinicians and researchers...



*Make people following
mindful behavioral changes*



Process-Based Therapy



Courtesy L. McCracken

Why Design is important for process-based therapies (PBT)?

PBT includes a set of:

- theory-based, dynamic, progressive, contextually bound and modifiable, and multilevel evidence-based processes

Processes linked with:

- evidence-based treatment kernels (procedures)

Procedures are:

- tools, exercises, metaphors, experiential techniques that reliably predict long-term positive outcomes

Design:

- help interventionists (researchers/clinicians) develop functionally important pathways and achieve treatment utility

BPT and Design target at Functionally important pathways



Design help processes of change to elicit:

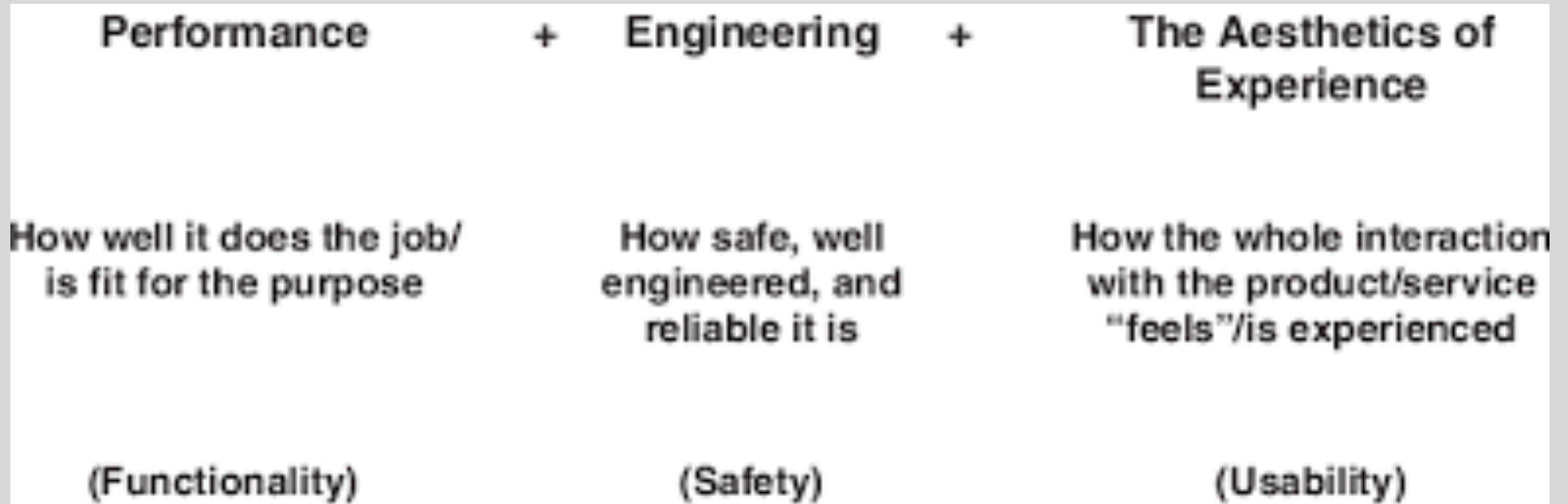
- Emotional reactions
- Experience maps



PBT processes ought to be delivered:

- Idiographically
- Tailored-made

Formula of designing “Good processes of change”

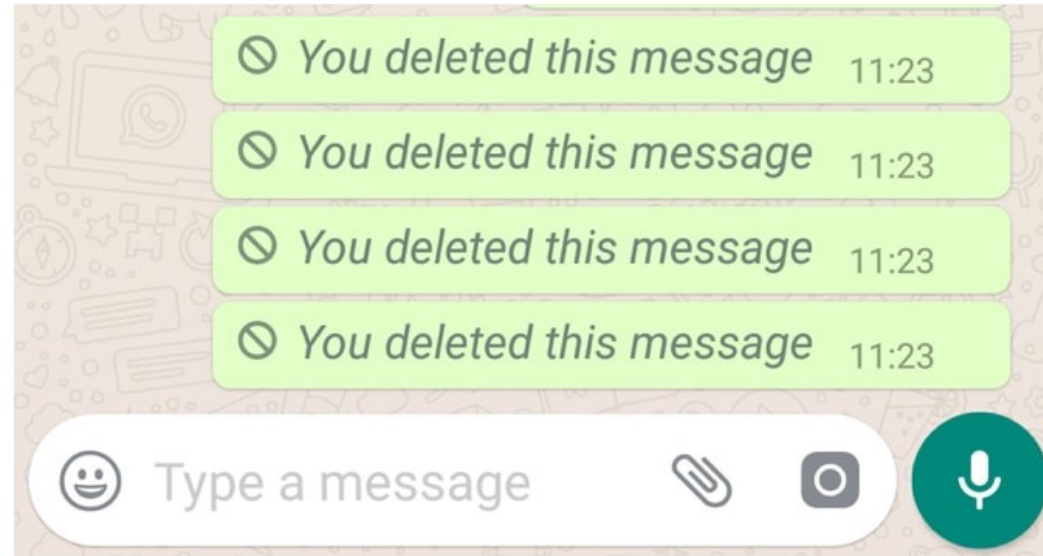


Bergun, S (2004)

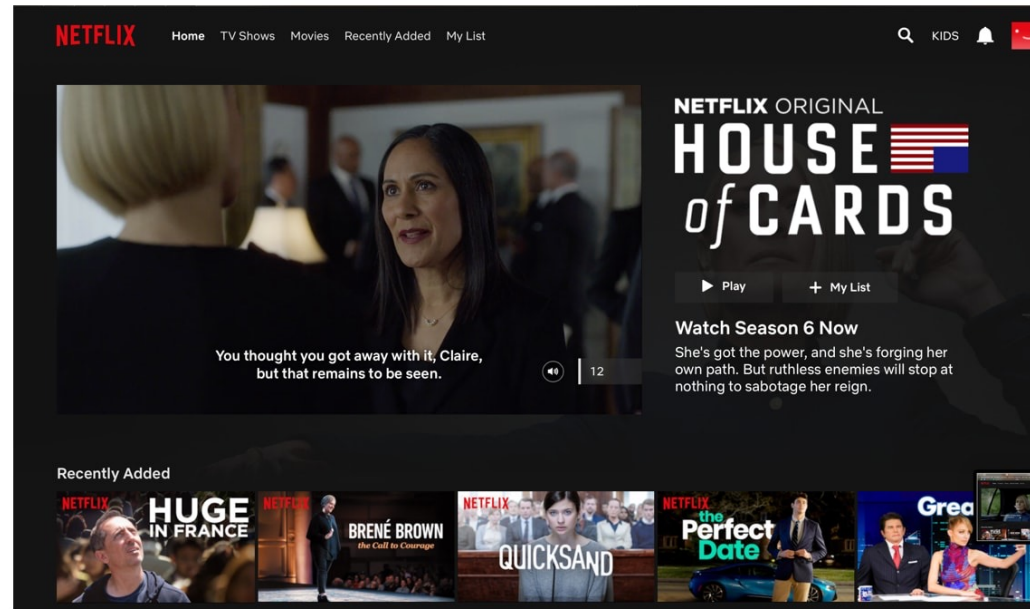


What's is your CBS- related design challenge? In pairs exercise

- In dyads talk to each other about a design challenge that has emerged from your own research or clinical implementation practice (doesn't have to be an app).
 - Something that doesn't work quite right, or that could work a lot better.
 - An unmet need for a patient, a caregiver, a health professional or other stakeholder.
 - Just identify what the problem is- don't go into the the solution



WHAT NOT TO DESIGN- WHATSAPP: BAD DESIGN PRACTICE 1



WHAT NOT TO DESIGN- NETFLIX: BAD DESIGN PRACTICE 2

The image shows a portion of a web form. On the left, a dropdown menu is open, displaying a list of countries from Saint Pierre and Miquelon to Venezuela. The 'United States' option is highlighted in blue. To the right of the dropdown is a text input field. Further right, there is a section titled 'Sign In Or Sign Up' with the text 'Sign in to check out faster.' Below this text is a large black button labeled 'Sign In' and a smaller link labeled 'Sign Up'. Below the dropdown menu, there is another text input field labeled 'Last Name*'. The overall design is clean and modern, but the long dropdown menu is a key example of bad design practice.

***WHAT NOT TO DESIGN-
SUPER LONG DROPDOWNS
: BAD DESIGN PRACTICE 3***

Home Doctor's Questions Treatment Options Common Questions The Internet Doctor

Your Treatment Options
 We have put together advice for coping with your symptoms based on doctors' experience, medical evidence and what has been found useful by people with similar symptoms.

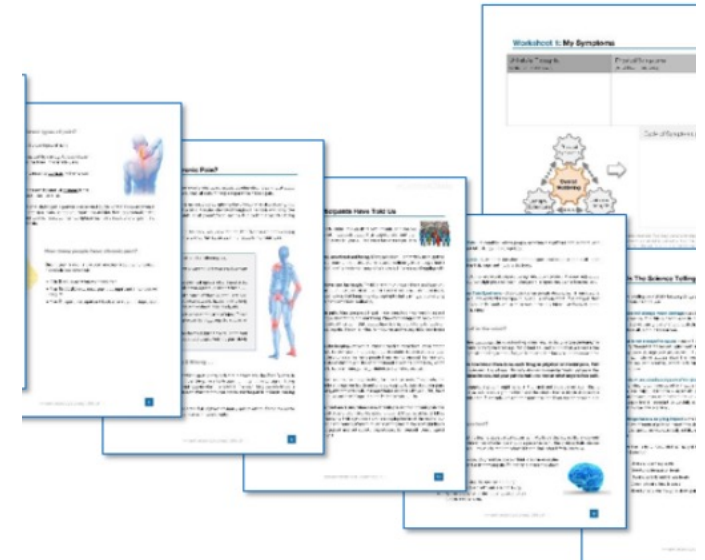
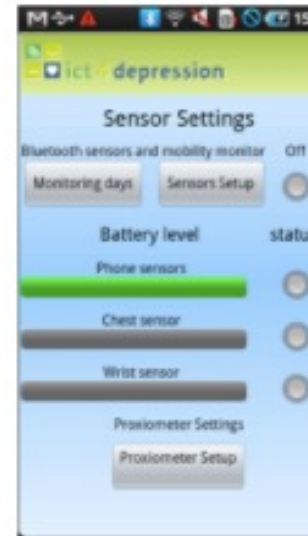
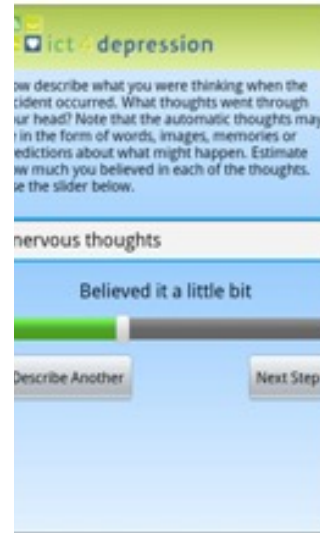
Ask the Internet Doctor
[Click here for advice on how you can ease your symptoms without any medication](#)
 You do not need to take any medication to treat your symptoms - here are some suggestions for you to ease your symptoms naturally.

[Click here for advice on what to ask for from the pharmacy, if you are happy to take medication](#)
 You do not need to worry that taking the medication we suggest could harm you. All the medicines we suggest are safe, and our treatment advice gives details of any side effects.

[Click here for advice on how to boost your immune system, and help your body to recover naturally](#)
 Fighting infection can leave you feeling weak and tired - we have given advice on how to care for yourself and build your strength.

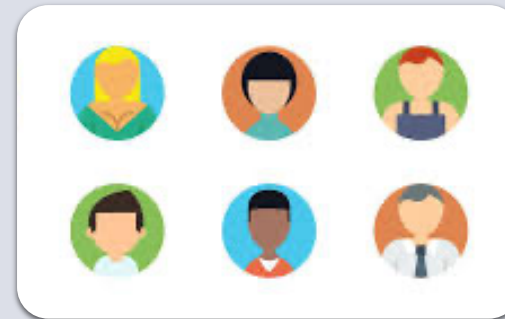
Don't forget to click on: [Common Questions](#) if you would like to know the answers to some more questions that people often ask about colds and flu.

BACK



NO PLANNING FOR USER ENGAGEMENT AND MANAGING DROPOUT

4 Dimensional Recommendations



A-priory theoretical Planning

- Utilize digital theory
 -) Consist of theory driven evidence-based psychological intervention content
 -) Take into account relevant ethical considerations

Human-Computer Interaction

- Apply theory-driven and empirically supported technological characteristics
 -) Include human or a sense of human contact
 -) Frequent content update

User-Related Characteristics

- Take into account known user characteristics that improve adherence
 -) Assess computer knowledge and experience & provide assistance

Active Assessment of usage

- Simple and direct instructions
 -) Utilize web-metrics to assess and monitor adherence of disengaged users

Identifying design challenges

Using
informants
(stake holders)

Contextual
Inquiry

Ethnographic
interviewing

Discovery
interviews

Participants and
users interactive
observations

Photographs

Story telling
(and critical
incidences)

Videotaping:
"the storytelling
laboratory"

Focus groups
and listening
labs

Patients
professional
action teams

Conversation
archives



***Part II: Hands-on examples-
turning processes of change into
digital interventions***

- The case of MyUSE
- ACT*healthy* projects,
- The case of ASpida,



UNDERSTANDING
SUBSTANCE USE

1 (brief) visit intervention (30-45')

Allocation of users based on their level of risk:

- No risk (no users)
- Low/Moderate risk (experimental users, 1-2/m)
- Substantial/severe risk (frequent users, weekly)

2 Stage user's journey via an algorithm defined

- [I] Profile building (assessment) and personalized feedback
- [II] Tailored to users' needs process of change therapeutic modules

Fr

- going to friends
- Being mo
- Keeping li
- deciding
- pretending e
- getting up for
- finding people
- finding a girl
- finding time to
- making it to lec
- assignments
- making it to work
- maintaining relation

Fears

- exclusion from fr
- missing out
- failing exams
- People seeing what
- Being by himself
- Repeating a year
- Parents finding out about
- failing the year
- parents finding out he
- fear of judgement? want
- failing college
- not able to reduce drug use

Text to write website

Do

- define PIS out
- Extract an
- theoretical basis
- What are we use
- Standard used, validate
- Context of use
- timing of interven
- UCD approp
- Screening
- measure eff
- early eng
- UICel
- ANIMO
- Social

- Use au
- Present text
- Use rosa
- Primary fo
- let student
- Focus group

Change

- attractive delivery
- How to deal with
- Prompting self-reflection
- efficacy or effectiveness
- Finding optimum leng
- UCC ownership determin
- determining how legislation
- non-users + concerned
- users at developmental transition phase

coaching role play

norms

coaching/teach to increase confidence to say no

Role play - 9M - practice process

Play out the situation for her / others

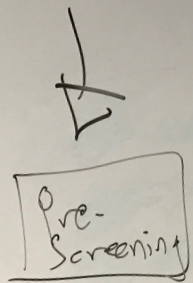
Postcarder intervention - safety - role play

Provide her with practical answer to decline

Provide her with steps to evaluate the situation

Video tutorial Tool - say yes no

Deny if she asks



alloca

ASSIST

Cut-off script
0-7

Column 1 + Row 1

Row 1:

Good from UCC point of view not just 1 student
Habit - coming for 1 Body

Interactive Usability

Trendy

Overall Health

Personalized

Row 2:

One physical health file, mostly one standard level?

HSE endorsed

Plain text + Visual Aids

Hopeful

Physical Health + Mental Health

Row 3:

Designed at young group
focus on medical side beneficial for young group (potential)

Medical

Avatar delivered

Animation

Playful

Designed more for college student
Postgraduates
Equally as important as PIS

Informative

Academic / Career

Person delivered

Video

Column 2:

Interactive - learn more

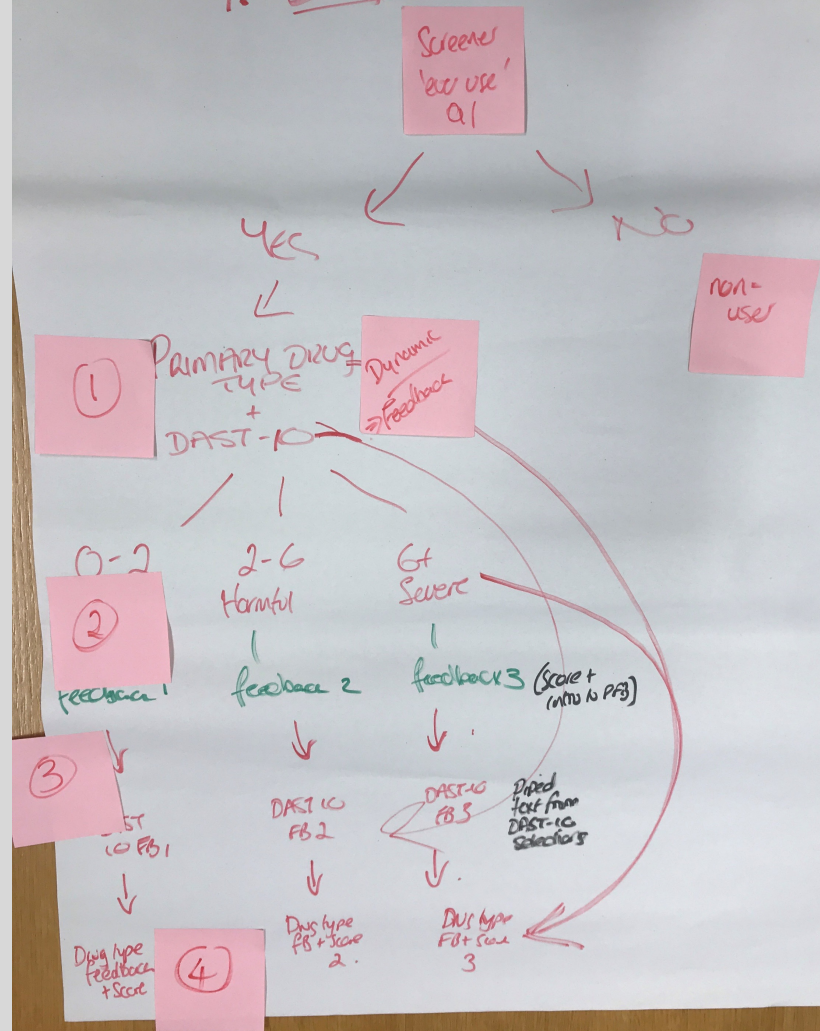
Column 2:

Engaging with Visual Aids

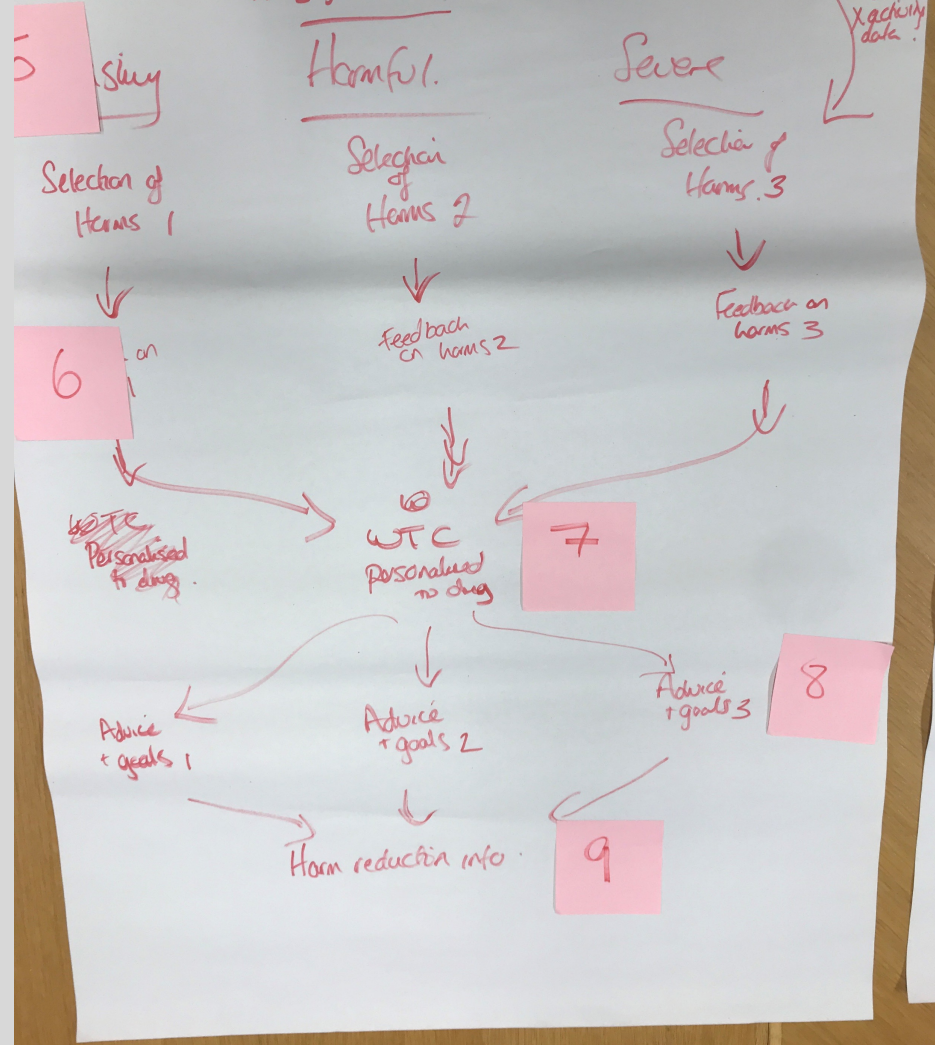
whats happening?

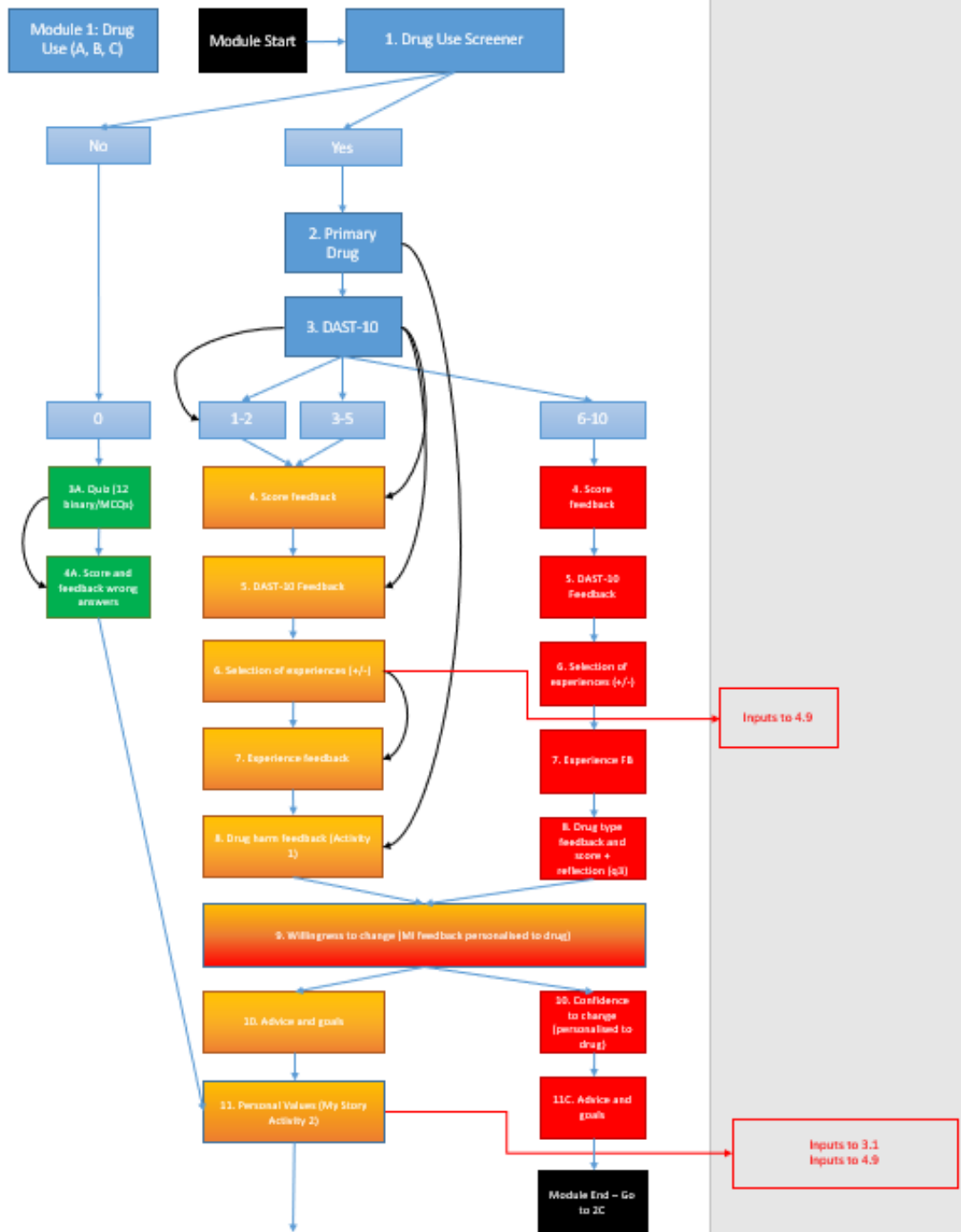
Key Moment

1. Drug Use Module



1. Drugs Module





File Home Insert Draw Page Layout Formulas Data Review View Help Ablebits Data Ablebits Tools

Clipboard Font Alignment Number Styles Cells Editing Analysis Sensitivity

Calibri 10 Bold Italic Underline Font Color Background Color

General Conditional Formatting Insert Delete Format Cell Styles

C6 1.2

	A	B	C	D	E	F	G	H	I	J	K	L
	Page	User	ID	Type	Content	Data (see Module 1 Data Sheet)	User input	Routing				
					Text	Description	Label	Type	Condition	BCT	Notes	
1					<p>Welcome to My Profile! In this section, we will ask you some questions about your experiences with drug use.</p> <p>In this context, "drugs" means any substance which was not prescribed for you and was not for medicinal purposes.</p> <p>As you respond to these questions, we would like you not to think of alcohol, nicotine or caffeine as drugs.</p>							
4	Intro	A, B, C	1.0	Text	Any information you provide here is completely confidential, and will not be shared with any third parties.	N/A	Introduction	N/A	response			No change
5	1	A, B, C	1.1	Question	<p>{{Question 1}}</p> <p>Response: Y/N</p>	Q1DAST 1	Drug Use Screener	Y/N response Q1. Y=1, N=0	IF Q1 = N, SKIP to Page 1.3A IF Q1 = Y, DISPLAY {{Data_11}} on page 1.5		Will there be any case there 1.5 is not shown? I don't think so. Should be seen by all	No change
6						Q2Drugs Used						
7						Q3Primary Drugs						
8						Data_1Selected Drug 1						
9						Data_2Selected Drug 2						
10					<p>{{Question 2}}</p> <p>Responses:</p> <p>{{Data_1}}; {{Data_2}}; {{Data_3}}; {{Data_4}}; {{Data_5}}; {{Data_6}}; {{Data_7}}; {{Data_8}}</p>	Data_3Selected Drug 3			Carry selected choices from {{Data_1-8}} to 1.2 Q3			
11						Data_4Selected Drug 4						
12						Data_5Selected Drug 5						
13					<p>{{Question 3}}</p> <p>Responses:</p> <p>{{Data_1}}; {{Data_2}}; {{Data_3}}; {{Data_4}}; {{Data_5}}; {{Data_6}}; {{Data_7}}; {{Data_8}}</p>	Data_6Selected Drug 6						
14						Data_7Selected Drug 7	Primary Drug Selection	Multiple Choice	Carry selected choices from {{Data_1-8}} to 1.8			Take out and move to before will become 1.5
15	2	B, C	1.2	Question, Data		Data_8Selected Drug 8						
16						Q4DAST 2						
17						Q5DAST 3						
18						Q6DAST 4						
19						Q7DAST 5						
20						Q8DAST 6						
21						Q9DAST 7						
22					<p>{{Questions 4-12}}</p> <p>Responses: Y/N</p>	Q10DAST 8		Y/N response				
23						Q11DAST 9		Q4. Y=1, N=0	IF Q4 = Y, DISPLAY {{Data_11}} on page 1.5			
24						Q12DAST 10		Q5. Y=0, N=1	IF Q5 = N, DISPLAY {{Data_12}} on page 1.5			
25					<p>IF Q7 = Y, DISPLAY:</p> <p>Many people can have mixed feelings about their drug use, including feelings of guilt. Sometimes, guilt can trigger some thoughts about harming oneself. From the following statements, pick the one that best describes how you have been</p>	Data_76Harm Risk 1		Q6. Y=1, N=0	IF Q6 = Y, DISPLAY {{Data_13}} on page 1.5			
26						Data_77Harm Risk 2		Q7. Y=1, N=0				
								Q8. Y=1, N=0				

Module 1

My Profile

Previously Module 1 (Basic Profile) and Module 2 (History)

Screen 1.0 - Introduction

Welcome to My Profile! In this section, we will ask you some questions about your experiences with drug use. In this context, "drugs" means any substance which was not prescribed for you and was not for medicinal purposes. As you respond to these questions, we would like you not to think of alcohol, nicotine or caffeine as drugs. Any information you provide here is completely confidential, and will not be shared with any third parties.

Screen 1.1 – Drug Use Screener

In the past 12 months, have you used drugs other than those required for medical reasons?

Yes No

Screen 1.2 – Primary Drug Selection

Which drugs have you used? (select all that apply)

Cocaine, Pottery, Alcohol, Marijuana, Heroin, Prescription Drugs, Other Drugs

Screen 1.2 – Primary Drug Selection

Which drugs have you used most frequently? (select one)

Cocaine, Marijuana, Heroin

Screen 1.3 – DAST-10

Do you ever more than use drug at a time? Yes No
Are you always able to stop using drugs when you want to? Yes No
Have you ever had blackouts or blackouts as a result of drug use? Yes No
Do you ever feel bad or guilty about your drug use? Yes No
Do people close to you (friends, partners, family) ever complain about your involvement with drugs? Yes No
Have you engaged in illegal activities in order to obtain drugs (e.g. theft)? Yes No
Have you ever experienced withdrawal symptoms (shaking, sweating, nausea, vomiting, etc.)? Yes No
Have you had medical problems as a result of your drug use (e.g. memory loss, hepatitis, convulsions, etc.)? Yes No

Screen 1.4 – Score Feedback

Based on your responses, you are at a **XX** risk of problems from your current pattern of use. You scored **XX/30** on the risk of drug use problems scale. People scoring **XX** or above means... text text text. People are usually surprised at their score... text text text. Being at **XX** risk level means that you may experience... Continuous use can put you at risk... affect goals in college. This score means your health may be at risk... text text text.

Screen 1.5 – DAST-10 Feedback

Let's look at your responses to the previous questions. Think about what these mean to you. [Three columns of feedback text]

Screen 1.6 – Selection of Experiences

There are different reasons why people use drugs, and there are some good and no-so-good things about drug use. Please identify which of the following you have experienced as a result of using drugs. (select all that apply)

Positive feelings, Increased social skills, Improved academic performance, Increased self-esteem, Increased confidence, Improved relationships, Increased energy, Improved focus, Improved productivity, Improved mood, Improved health, Improved appearance, Improved performance, Improved skills, Improved knowledge, Improved understanding, Improved awareness, Improved insight, Improved perspective, Improved vision, Improved hearing, Improved taste, Improved smell, Improved touch, Improved feeling, Improved thinking, Improved learning, Improved memory, Improved concentration, Improved attention, Improved motivation, Improved discipline, Improved organization, Improved planning, Improved decision-making, Improved problem-solving, Improved communication, Improved teamwork, Improved leadership, Improved management, Improved negotiation, Improved conflict resolution, Improved stress management, Improved time management, Improved budgeting, Improved financial management, Improved resource management, Improved risk management, Improved safety management, Improved health management, Improved personal management, Improved professional management, Improved social management, Improved cultural management, Improved ethical management, Improved legal management, Improved environmental management, Improved technological management, Improved scientific management, Improved artistic management, Improved creative management, Improved entrepreneurial management, Improved leadership management, Improved management management, Improved organizational management, Improved business management, Improved industrial management, Improved service management, Improved government management, Improved non-profit management, Improved religious management, Improved educational management, Improved healthcare management, Improved legal management, Improved military management, Improved aviation management, Improved maritime management, Improved space management, Improved transportation management, Improved communication management, Improved information management, Improved computer management, Improved internet management, Improved mobile management, Improved software management, Improved hardware management, Improved network management, Improved security management, Improved privacy management, Improved identity management, Improved reputation management, Improved brand management, Improved marketing management, Improved sales management, Improved customer management, Improved employee management, Improved volunteer management, Improved community management, Improved citizen management, Improved resident management, Improved tenant management, Improved neighbor management, Improved friend management, Improved partner management, Improved family management, Improved pet management, Improved hobby management, Improved sport management, Improved leisure management, Improved entertainment management, Improved travel management, Improved vacation management, Improved retirement management, Improved end-of-life management, Improved death management, Improved bereavement management, Improved grief management, Improved loss management, Improved change management, Improved transition management, Improved adaptation management, Improved coping management, Improved resilience management, Improved stress management, Improved anxiety management, Improved depression management, Improved mental health management, Improved physical health management, Improved overall health management, Improved quality of life management, Improved life satisfaction management, Improved well-being management, Improved happiness management, Improved fulfillment management, Improved purpose management, Improved meaning management, Improved spirituality management, Improved religion management, Improved faith management, Improved hope management, Improved love management, Improved compassion management, Improved kindness management, Improved generosity management, Improved gratitude management, Improved forgiveness management, Improved patience management, Improved humility management, Improved modesty management, Improved simplicity management, Improved frugality management, Improved thriftiness management, Improved resourcefulness management, Improved ingenuity management, Improved inventiveness management, Improved creativity management, Improved innovation management, Improved leadership management, Improved management management, Improved organizational management, Improved business management, Improved industrial management, Improved service management, Improved government management, Improved non-profit management, Improved religious management, Improved educational management, Improved healthcare management, Improved legal management, Improved military management, Improved aviation management, Improved maritime management, Improved space management, Improved transportation management, Improved communication management, Improved information management, Improved computer management, Improved internet management, Improved mobile management, Improved software management, Improved hardware management, Improved network management, Improved security management, Improved privacy management, Improved identity management, Improved reputation management, Improved brand management, Improved marketing management, Improved sales management, Improved customer management, Improved employee management, Improved volunteer management, Improved community management, Improved citizen management, Improved resident management, Improved tenant management, Improved neighbor management, Improved friend management, Improved partner management, Improved family management, Improved pet management, Improved hobby management, Improved sport management, Improved leisure management, Improved entertainment management, Improved travel management, Improved vacation management, Improved retirement management, Improved end-of-life management, Improved death management, Improved bereavement management, Improved grief management, Improved loss management, Improved change management, Improved transition management, Improved adaptation management, Improved coping management, Improved resilience management, Improved stress management, Improved anxiety management, Improved depression management, Improved mental health management, Improved physical health management, Improved overall health management, Improved quality of life management, Improved life satisfaction management, Improved well-being management, Improved happiness management, Improved fulfillment management, Improved purpose management, Improved meaning management, Improved spirituality management, Improved religion management, Improved faith management, Improved hope management, Improved love management, Improved compassion management, Improved kindness management, Improved generosity management, Improved gratitude management, Improved forgiveness management, Improved patience management, Improved humility management, Improved modesty management, Improved simplicity management, Improved frugality management, Improved thriftiness management, Improved resourcefulness management, Improved ingenuity management, Improved inventiveness management, Improved creativity management, Improved innovation management.

Screen 1.7 – Experiences Feedback

These are the experiences you have had from your drug use. [Grid of 'Good things' and 'Not-so-good things']
We can see that you have selected equal numbers of "good things" and "not-so-good" things. It seems that you are getting something from your drug use, but are feeling the less positive effects also. That is ok, many people feel like this. Working through MyUSE can help you to look at how your drug use may be affecting your college life, and how to make a plan for change.

Screen 1.8 – Drug Harm Feedback (incorporated into body animation)

The drug you most frequently used in the last year is **XX**. These are the potential harms that could be experienced by a person with a **XX** risk of problems from **XX**.

Brain: Memory loss, mood changes, impaired judgment	Heart: Increased risk of heart disease, stroke	Respiratory: Chronic bronchitis, emphysema, asthma	Liver: Fatty liver disease, hepatitis, liver failure	Stomach: Stomach ulcers, gastritis, pancreatitis	Immune system: Weakened immune system, increased susceptibility to infections	Reproductive: Reduced fertility, complications during pregnancy, birth defects	Mental health: Anxiety, depression, psychosis, schizophrenia	Physical health: Weight gain, osteoporosis, chronic pain	Financial: Debt, bankruptcy, loss of income	Legal: Arrest, fines, imprisonment	Social: Isolation, loss of friends, family	Academic: Poor grades, loss of motivation, dropping out	Occupational: Job loss, reduced productivity	Personal: Loss of self-esteem, identity	Overall: Reduced quality of life, premature death
---	--	--	--	--	---	--	--	--	---	------------------------------------	--	---	--	---	---

Screen 1.8 – Body Animation Prototype (Activity 1)



Screen 1.9 – Willingness to Change

If you think about changing your current pattern of drug use, on a scale of 0-10, how willing are you to change any aspect of your use, in order to reduce harm to yourself and others?

0: Not at all willing, 10: Extremely willing

It seems that you may have been thinking about making some changes to your drug use, but you're not quite sure. That's ok. Many people find themselves in this situation, when they may be in the process of cutting down or going up, but they are getting something from drug use that they may not want to change (e.g. Fun). It might be helpful to consider what will happen if you make a change, and what will happen if you continue as you are? Working through MyUSE can help you in making these decisions.

Screen 1.10 – Advice and Goals

Reducing the risk from use can be achieved by:
1. Deciding to cut down or stop using drugs
2. Considering whether drug use contributes to the student experience you want to have.
MyUSE will help you to explore and reflect on your drug use experiences.

Screen 1.11 – Personal Values (My Story – Activity 2)

Writing My Story

What do you want to achieve while in college?

1. Get a job
2. Get a good grade
3. Get a good friend

Screen 1.12

Intro to PC... text text text. In your opinion... %
What percentage of Irish students do not use drugs at all? 32%
What percentage of Irish students used drugs in the last year? 72%

Screen 1.13

How would the people you care most about feel if you didn't use drugs at all?
How would the people you care most about feel if you used drugs, occasionally?
How would the people you care most about feel if you used drugs, regularly?

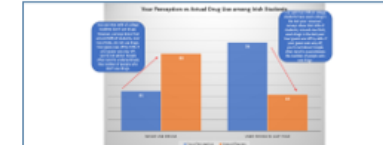
Screen 1.14 – Basic Design (incorporate graph design)

Your perceptions of drug use among Irish students and the actual figures may be skewed.

You said that 9% of college students don't use drugs. However, surveys show that 32% of students do not use drugs at all. This is a significant difference. Please think about why this might be the case.

You said that 3% of college students had used a drug in the last year. However, surveys show that 72% of students used drugs in the last year. This is a significant difference. Please think about why this might be the case.

Screen 1.14 – Graph Prototype (Activity 3)



Screen 1.15

3-3 lines specific injunctive norm feedback based on selections (pos/neg/mixed).

Screen 1.3A – Quiz (T/F)

Screen 1.3A – Quiz (MCQ)

Screen 1.4A – Quiz Score


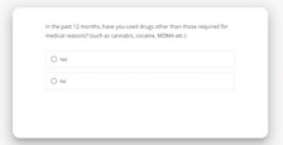
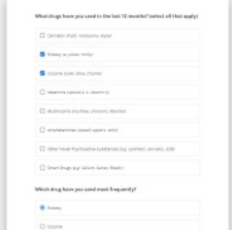

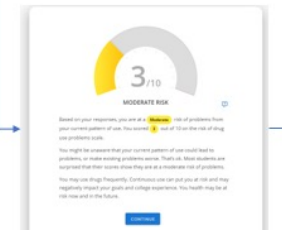
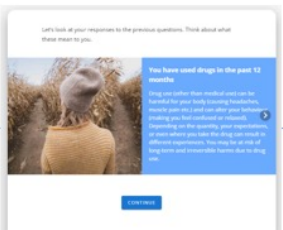

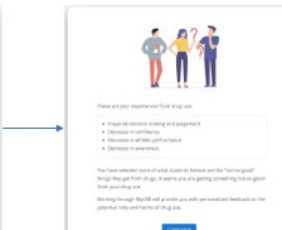
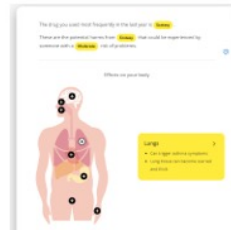
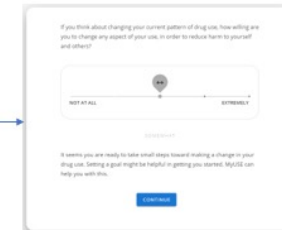
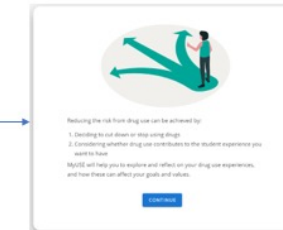
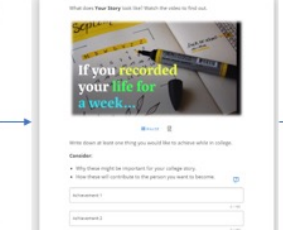
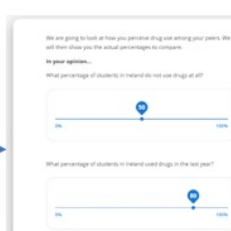
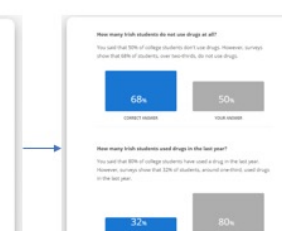
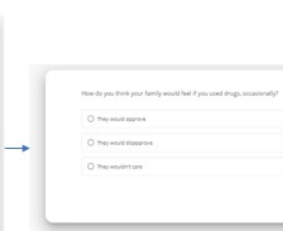

```
1 {
2   "type": {"name": "default"},
3   "1-0": {
4     "load": {
5       "next": "1-1"
6     },
7     "1-1": {
8       "conditions": {
9         "past-use": [
10          {
11            "answer": 0,
12            "next": "1-2"
13          },
14          {
15            "answer": 1,
16            "next": "1-2A"
17          }
18        ],
19        "actions": [
20          {
21            "key": "setUserType",
22            "value": "Non-User"
23          }
24        ]
25      },
26      "1-2": {
27        "completed": {
28          "next": "1-3",
29          "actions": [
30            {
31              "key": "setSelectedDrug"
32            }
33          ]
34        },
35        "1-3": {
36          "actions": [
37            {
38              "key": "setPrimaryDrug"
39            }
40          ]
41        }
42      }
43    }
44  }
45 }
```

```
1 //
2
3 Route::middleware([
4   'api',
5   InitializeTenancyByRequestData::class
6 ])->group(function () {
7
8   // Admin Authorization
9   Route::group(['prefix' => 'auth', function () {
10    Route::post('register_administrator', 'AuthAdministratorController@register_administrator');
11    Route::post('login_administrator', 'AuthAdministratorController@login_administrator');
12    Route::post('prepare_invite', 'AuthInvitationController@prepare_invite');
13    Route::post('invite_user', 'MailController@sendRegistrationInvitationEmail');
14    Route::get('list_invitations', 'AuthInvitationController@list_invitations');
15    Route::post('password_reset_email', 'AuthForgotPasswordController@password_reset_email');
16    Route::post('password_reset', 'AuthForgotPasswordController@password_reset');
17    Route::post('email/resend', 'AuthVerificationController@resend')->name('verification.resend');
18    Route::post('email/check_verified', 'AuthVerificationController@check_verified');
19    Route::get('unauthorized_admin', 'AuthAdministratorController@unauthorized_admin');
20  });
21
22 // Require API key
23 Route::middleware([
24   'auth:guard-user'
25 ])->group(function () {
26   Route::group(['middleware' => ['auth:api', 'scopes:admin'], 'prefix' => 'auth'], function () {
27     Route::get('logout_administrator', 'AuthAdministratorController@logout_administrator');
28     Route::get('send_invite_email', 'AuthInvitationController@send_invite_email');
29   });
30   // Subscription
31   Route::group(['middleware' => ['auth:api', 'scopes:admin'], 'prefix' => 'subscription'], function () {
32     Route::get('get_billinginfo', 'APITenantController@get_billinginfo');
33     Route::get('get_tenant_info', 'APITenantController@get_tenant_info');
34     Route::post('get_team_info', 'APITenantController@get_team_info');
35   });
36   // Distributions
37   Route::group(['middleware' => ['auth:api', 'scopes:admin'], 'prefix' => 'distributions'], function () {
38     Route::post('list_distributions', 'APITenantController@list_distributions');
39   });
40 });
41
42 No symbols found in document 'api.php'
```

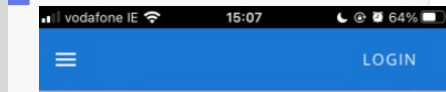
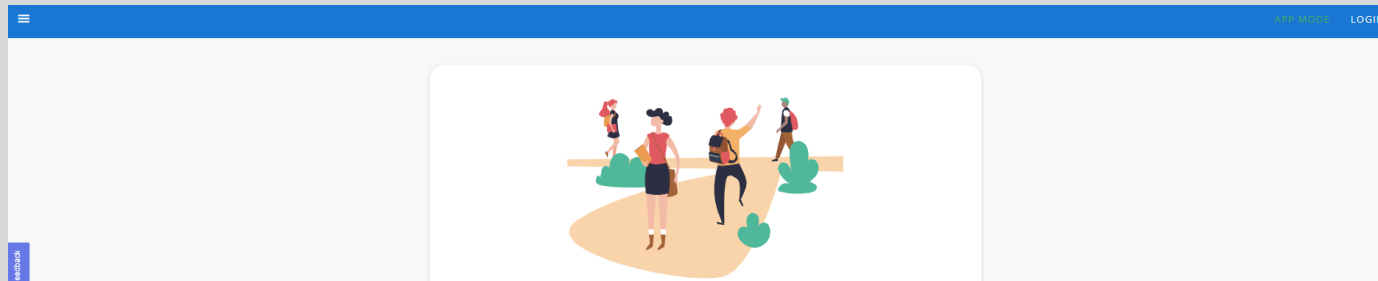
```
1 widget: 'list'
2 hint: 'Add a slider to the list'
3 fields:
4   - {
5     label: 'Button Text',
6     name: 'text',
7     widget: 'string',
8   }
9
10 # CMS - Select and Rank
11 - label: 'Select and Rank'
12 name: 'rank'
13 widgets: 'list'
14 create: true
15 description: >
16   Generate a select and rank question component
17 fields:
18   - { label: 'Question Text', name: 'string', widget: 'string' }
19   - {
20     label: 'Lower selection limit',
21     name: 'lower_limit',
22     hint: 'Mark question as completed after x have been selected',
23     widget: 'number',
24   }
25   - {
26     label: 'Upper selection limit',
27     name: 'upper_limit',
28     hint: 'Can only select this amount',
29     widget: 'number',
30   }
31 }
32
33 - label: 'List Item'
34 name: 'items'
35 widget: 'list'
36 hint: 'Add an item to the list'
37 fields:
38   - { label: 'List Item', name: 'item', widget: 'string' }
39 }
40
41 # Multiple Choice Single
```

```
1 class ActivityController extends Controller
2 {
3   /**
4    * Activity Controller
5    *
6    * Store and recall user activity
7    */
8
9   public function __construct()
10  {
11    $this->middleware('auth:guard-user')->except('logout');
12  }
13
14   /**
15    * Update a User profile type
16    * @param Request $request
17    */
18   public function commit_user_type (Request $request) {
19
20     Validator::make($request->all(), [
21       'user_type' => 'required',
22     ]);
23
24     $user = Auth::user();
25     if (!$user) {
26       return response()->json(['message' => 'Could not update user type'], 404);
27     }
28     else {
29       $user->user_type = $this->get_user_type($request->user_type);
30       $user->save();
31       return response()->json(['message' => 'Updated User Type to ' . $user->user_type], 200);
32     }
33   }
34 }
```

To this!

MyUSE Current Stage



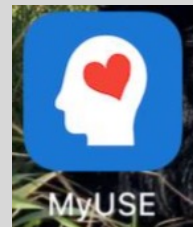
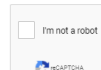
Welcome to MyUSE!

At MyUSE, we know how exciting college life can be. We are here to help you have the best college experience, achieve your goals and reduce the harms related to drug use.

You can complete MyUSE whether you have had **no experience, a little experience, or a lot of experience** with drugs.

In the first part of your MyUSE journey, you will be able to build your own personal profile. You will then be able to complete some activities that will help you to get the most out of your college life, while achieving your goals and reducing harm.

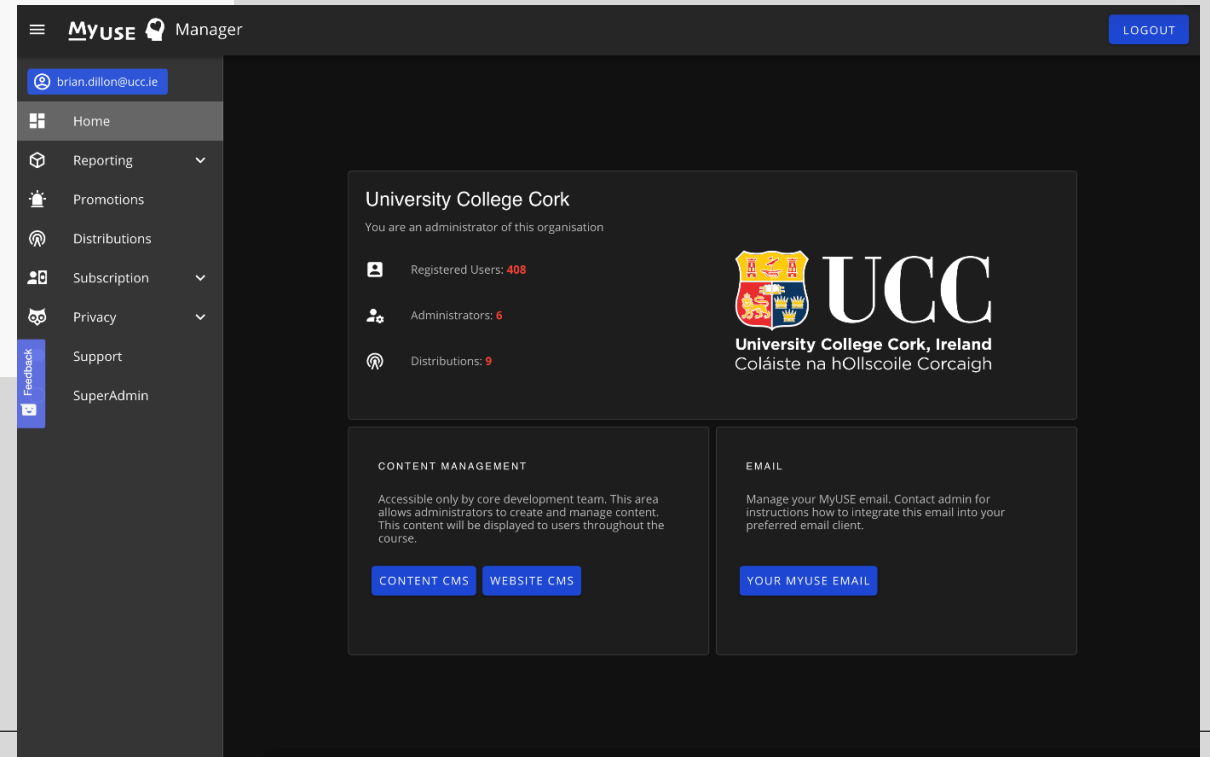
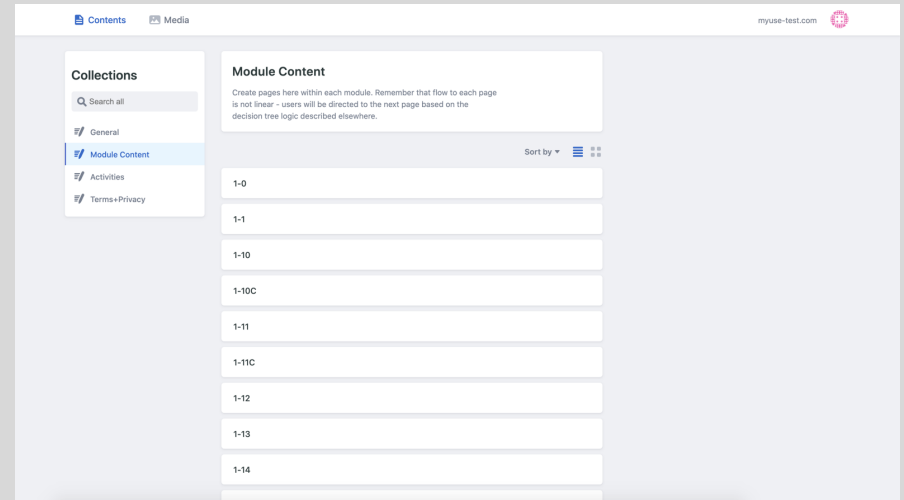
Please read questions carefully, you won't be able to change your responses. Feel free to leave feedback or comments at any time using the side tab.



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MyUSE Demo

Feedback



Welcome to MyUSE!

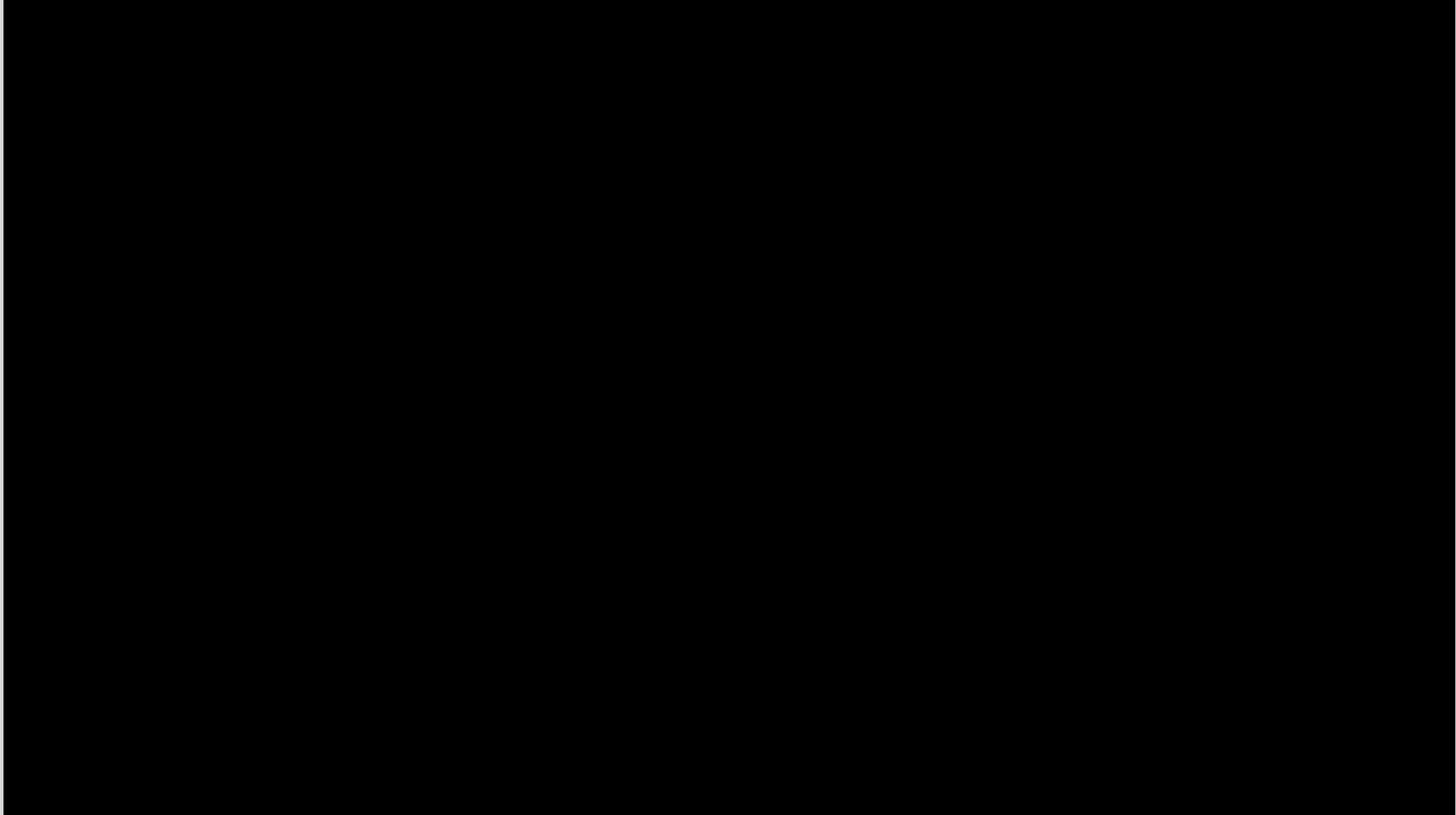
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Please read questions carefully, you won't be able to change your responses. Feel free to leave feedback or comments at any time using the side tab.



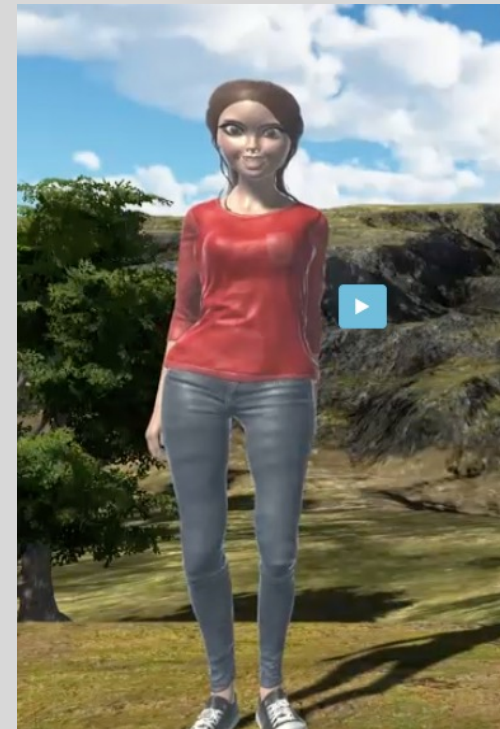
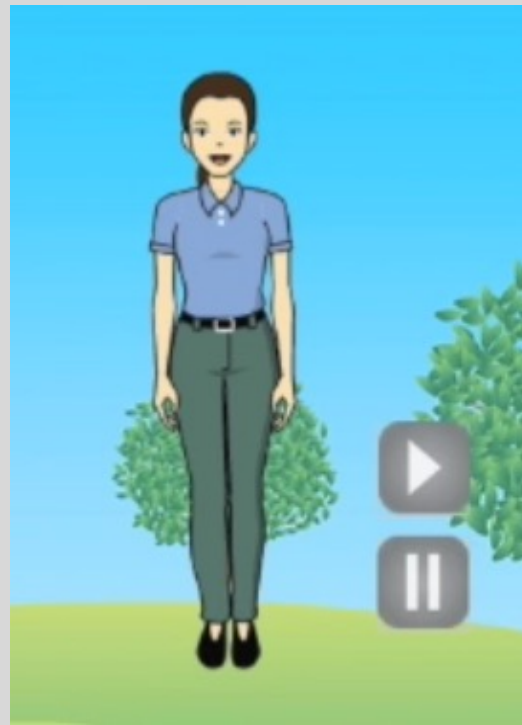
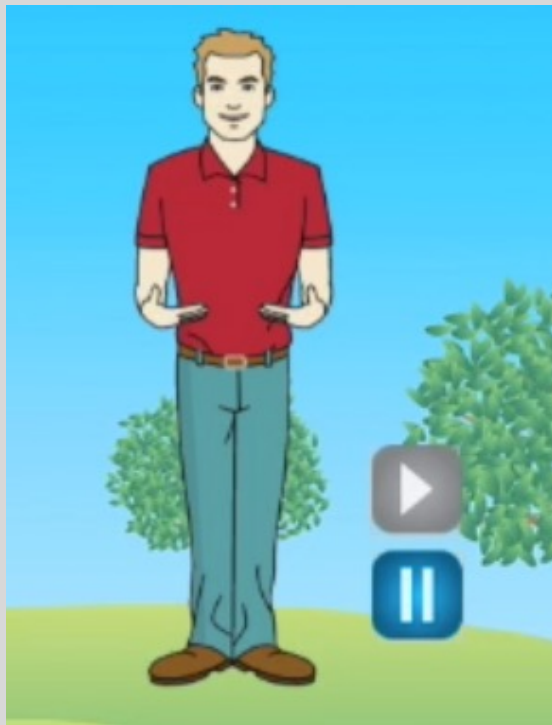




projects

Flexiquit project & extensions

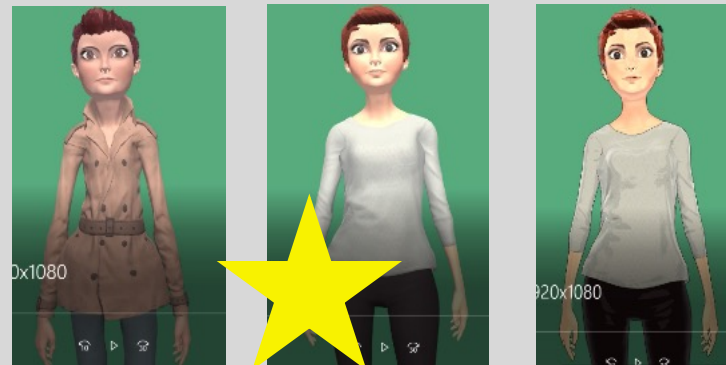
Versions O & σ : Target audience adolescents & young adults



Karekla & Savvides (2021). *Translation Behavioral Medicine*, 11, 198-205. doi: 10.1093/tbm/ibz128.

Karekla, Savvides & Gloster (2020). *Annals of Behavioral Medicine*, 54 (10), 747-760. doi:10.1093/abm/kaaa013

LGBT Flexiquit-Project EQQUAL



U.S. Department
of Veterans Affairs



FRED HUTCH
CURES START HERE™

VETFLEXIQUIT

VETFLEXIQUIT

Home About Logout



WELCOME, MARIA!

Everyone's journey to quitting smoking starts somewhere.

I'm Alex, and I'll be your guide in this program. Vet Flexiquit is designed specifically for Veterans. You don't have to be ready to quit smoking to use this program—it's for everyone.

[Start Your Journey](#)



U.S. Department
of Veterans Affairs

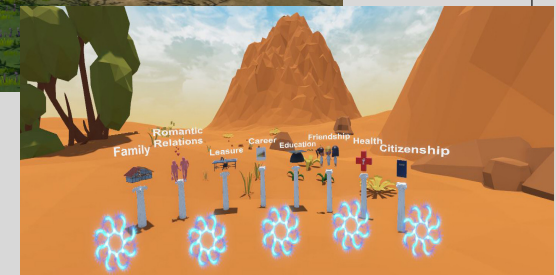


FRED HUTCH
CURES START HERE[®]



Multi-User Virtual Reality- Values intervention for individuals at high-risk for Eating Disorders

CO-DESIGN PROCESS



Multi-User Virtual Reality- Values intervention for individuals at high-risk for Eating Disorders

CO-DESIGN PROCESS

1. Created a shared vision of how VR can support Eating Disorders Prevention and Psychotherapy

2. Articulated MUVR adaptation & User Interface (UI) elements

3. Specified therapist-participant interaction with MUVR virtual objects and tasks & participant avatar appearance

4. Specified design factors for representations & Executed systems usability for the therapeutic scenario



5. Created participant's avatar customization technique

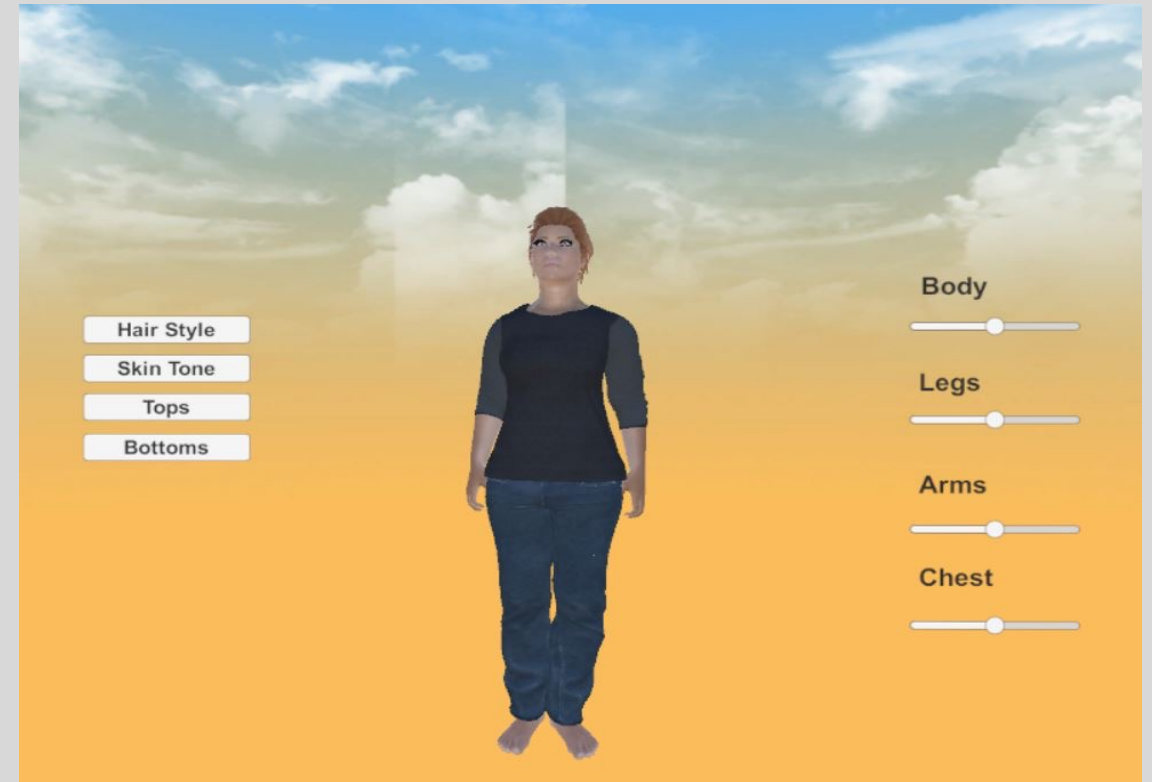
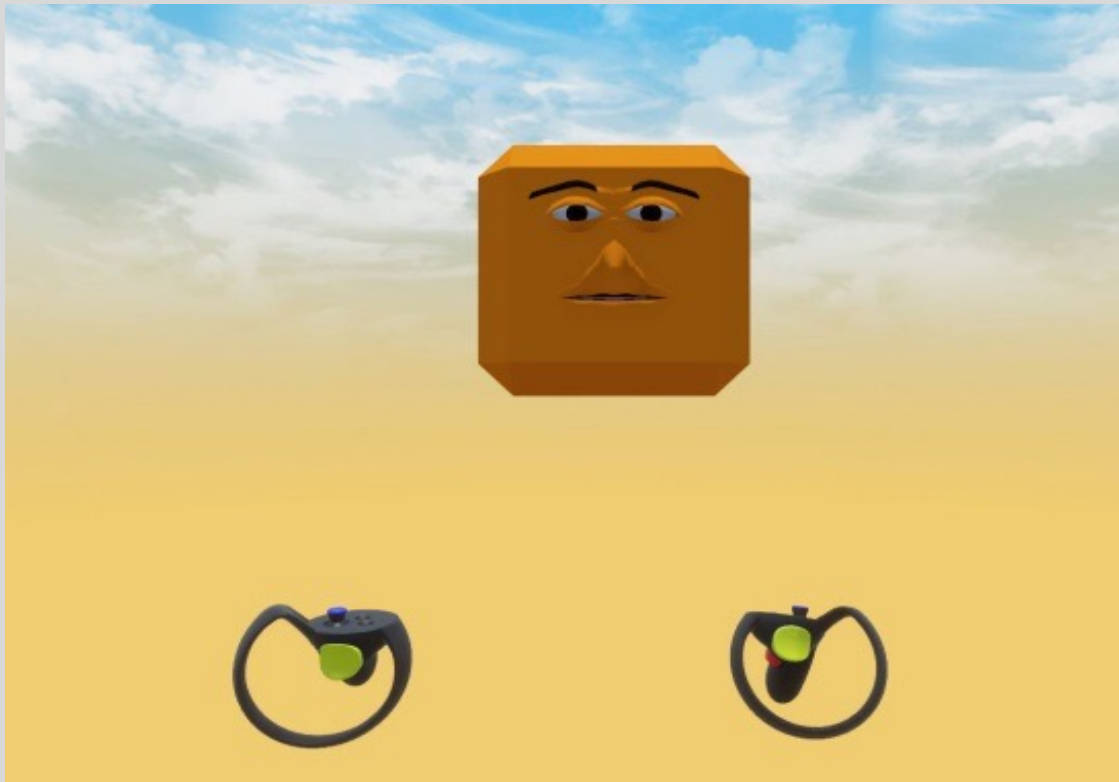
6. Specified the interaction mechanisms.

7. Tested and Executed the final application with end-users

8. Finalized the MUVR application

9. Testing and Execution

MUVR CO-DESIGN PROCESS OUTCOMES

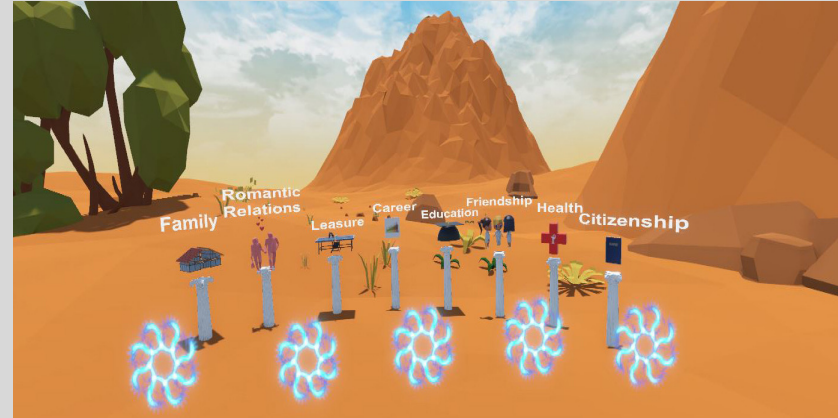


MUVR CO-DESIGN PROCESS OUTCOMES

VE1

1	9	17	25	33	41	49	57	65	73
2	10	18	26	34	42	50	58	66	74
3	11	19	27	35	43	51	59	67	75
4	12	20	28	36	44	52	60	68	76
5	13	21	29	37	45	53	61	69	77
6. Ανεργία	14	22	30	38	46	54	62	70	78
7	15	23	31	39	47	55	63	71	79
8	16	24	32	40	48	56	64	72	80

VE2



VE3



Values vs. Play VEs



Selection menu

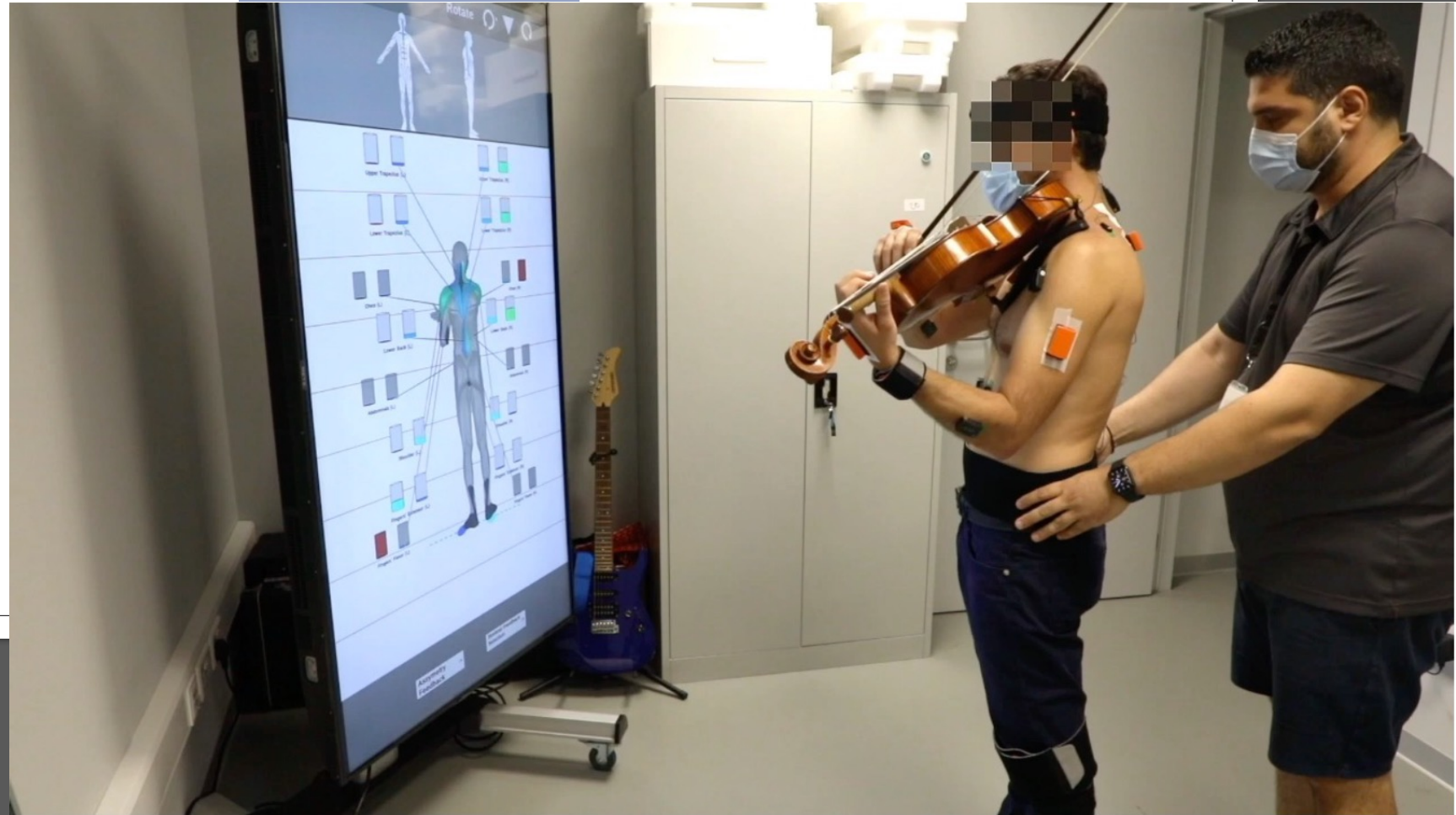
Therapist and Patient load
the application on their PCs

Therapist

Patient

TONE project

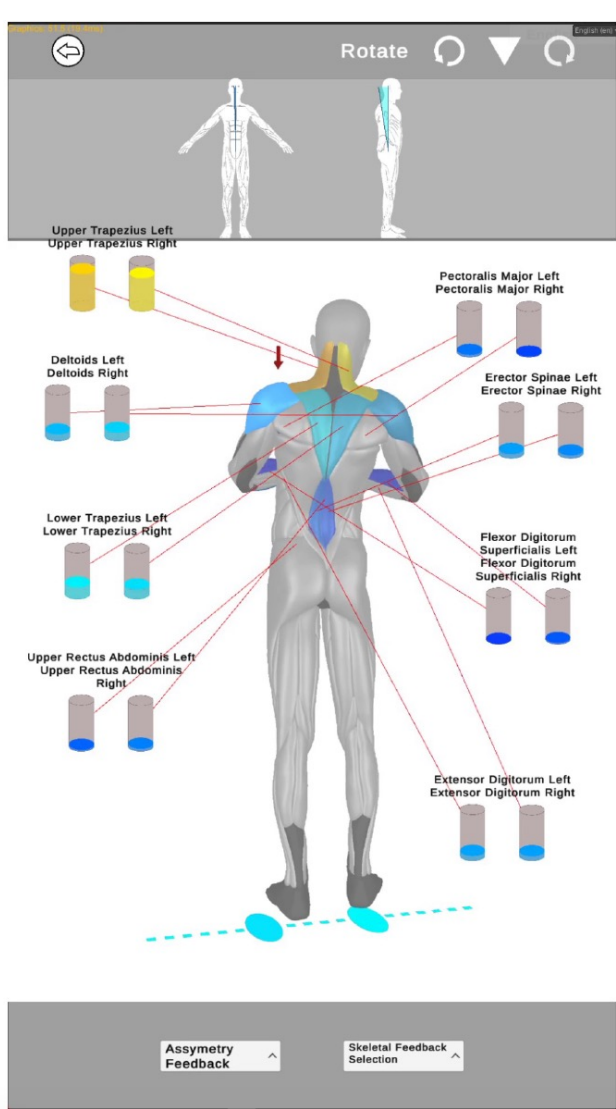
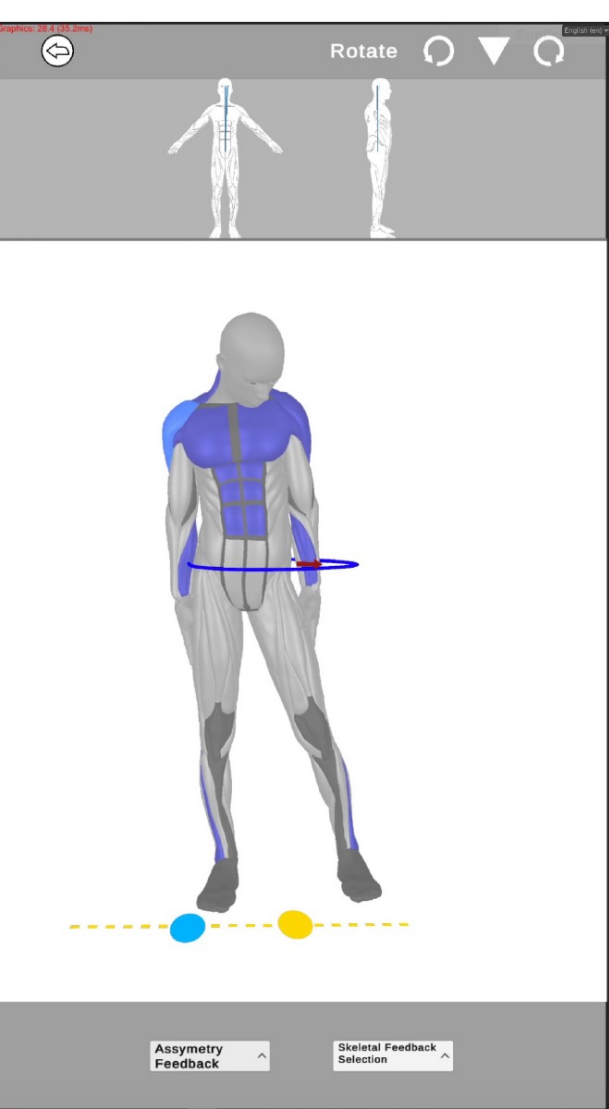
Using musculo-postural biofeedback in virtual reality for pain management in musicians



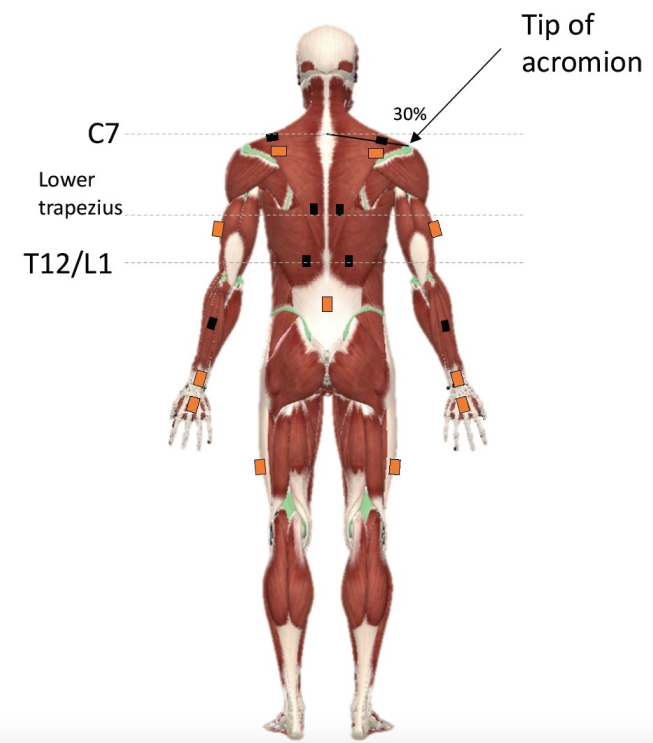
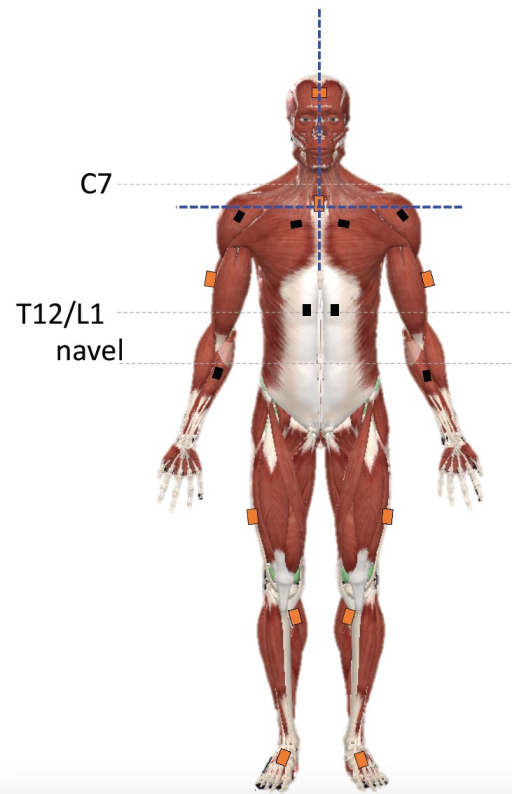
Host

Partner

Partner

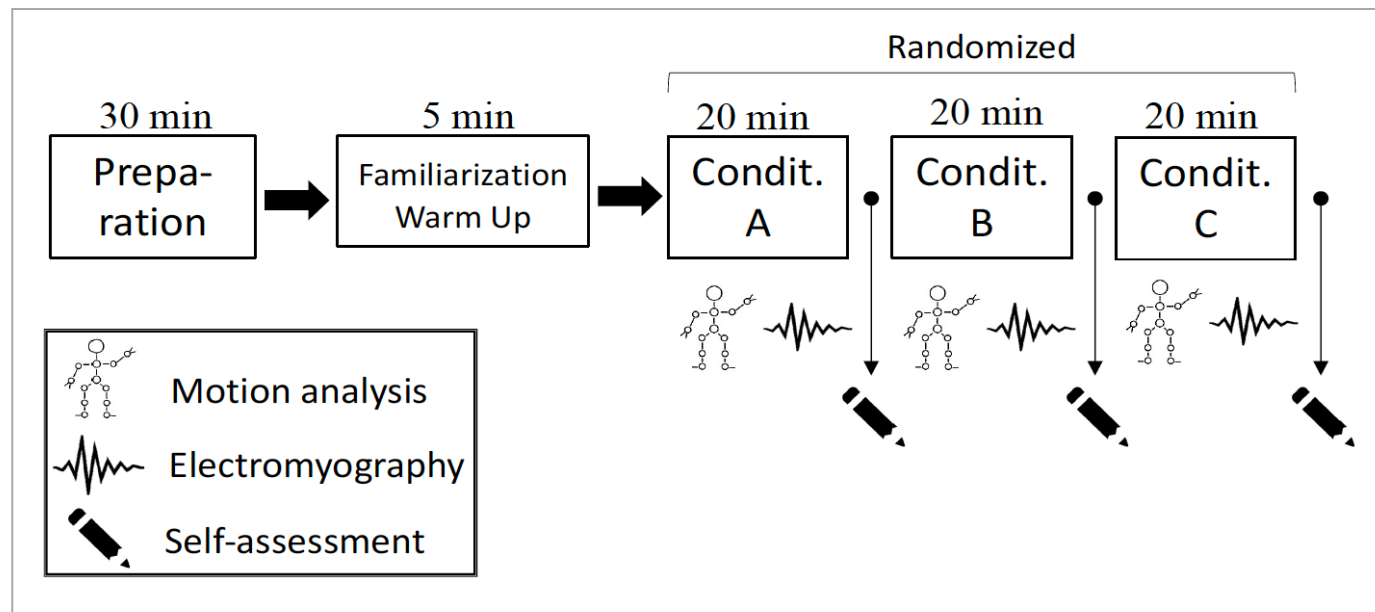


16 EMG electrodes
17 IMU sensors

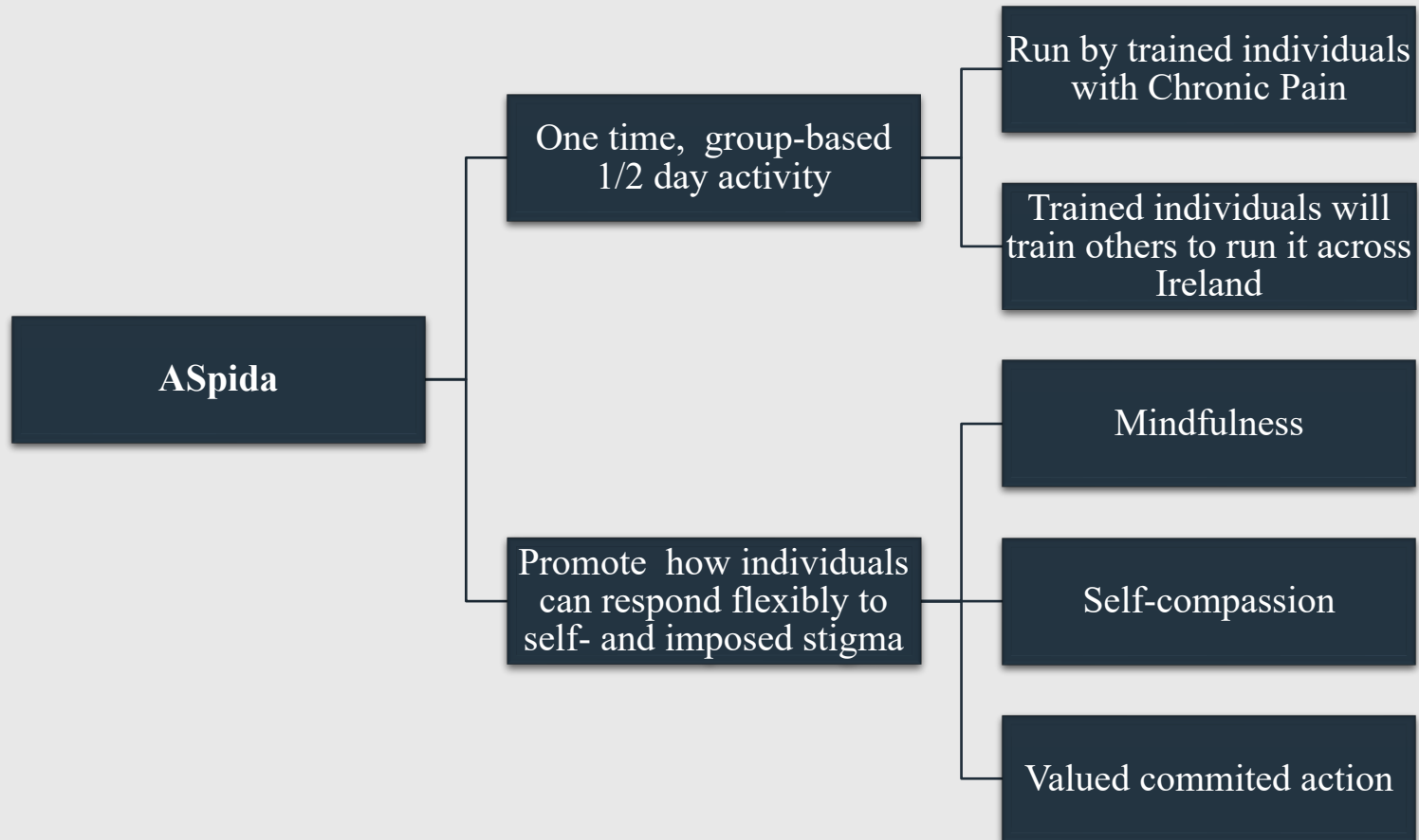




Procedure



ASpida: Against Stigma Pain Intervention Development Approach



Prototype development of tool for stigma

Planning our Focus groups

The bingo game

Formulating research questions

Designing a FG guide

Analyzing Data

Submitting Ethical Application

Planning the FG

Writing conclusions

Inviting eligible participants

Disseminating findings

Recruiting participants

Reporting Findings (write-up)

Assessing eligibility

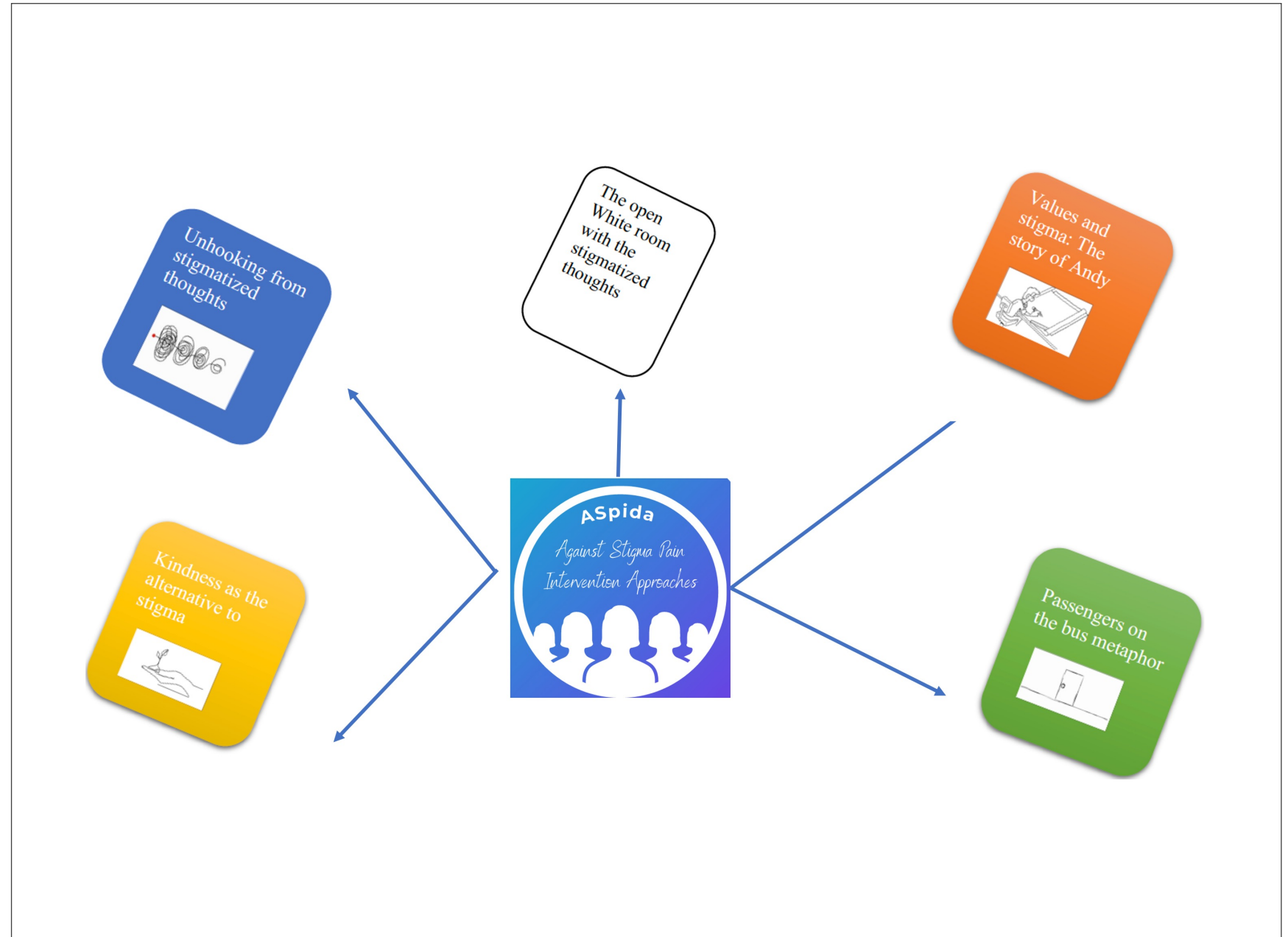
Pilot FG guide

which has been developed from and I am a member. In this group, me and other individuals with chronic pain, help a research team from the School of Applied Psychology, University College Cork, to develop a ½ day anti-stigma workshop.

ing 15', I will guide you to do an exercise that will help you retrieve a stigma you had felt. The exercise may bring some memories which can trigger we suggest you to bring a recent less emotional demanding

PF Digital prototypes developed

- Mock- up
- Animations
- Films and recording stories
- Experiential exercises



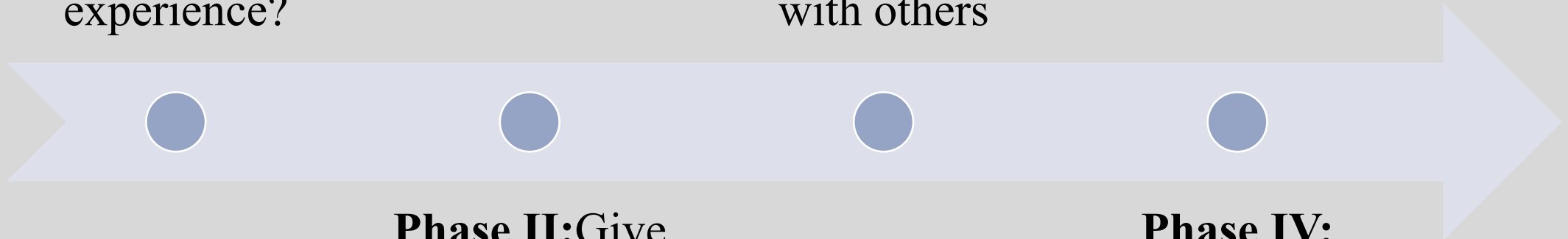
Prototype testing

Phase I: How
you have
coped with a
stigma
experience?


**Phase
III:** Sharing
your views
with others

Phase II: Give
it a try! Apply
the activities
yourself

Phase IV:
Inform the
ASpida self-
care workshop





Video ASpida prototypes




ASpida, Activity 1

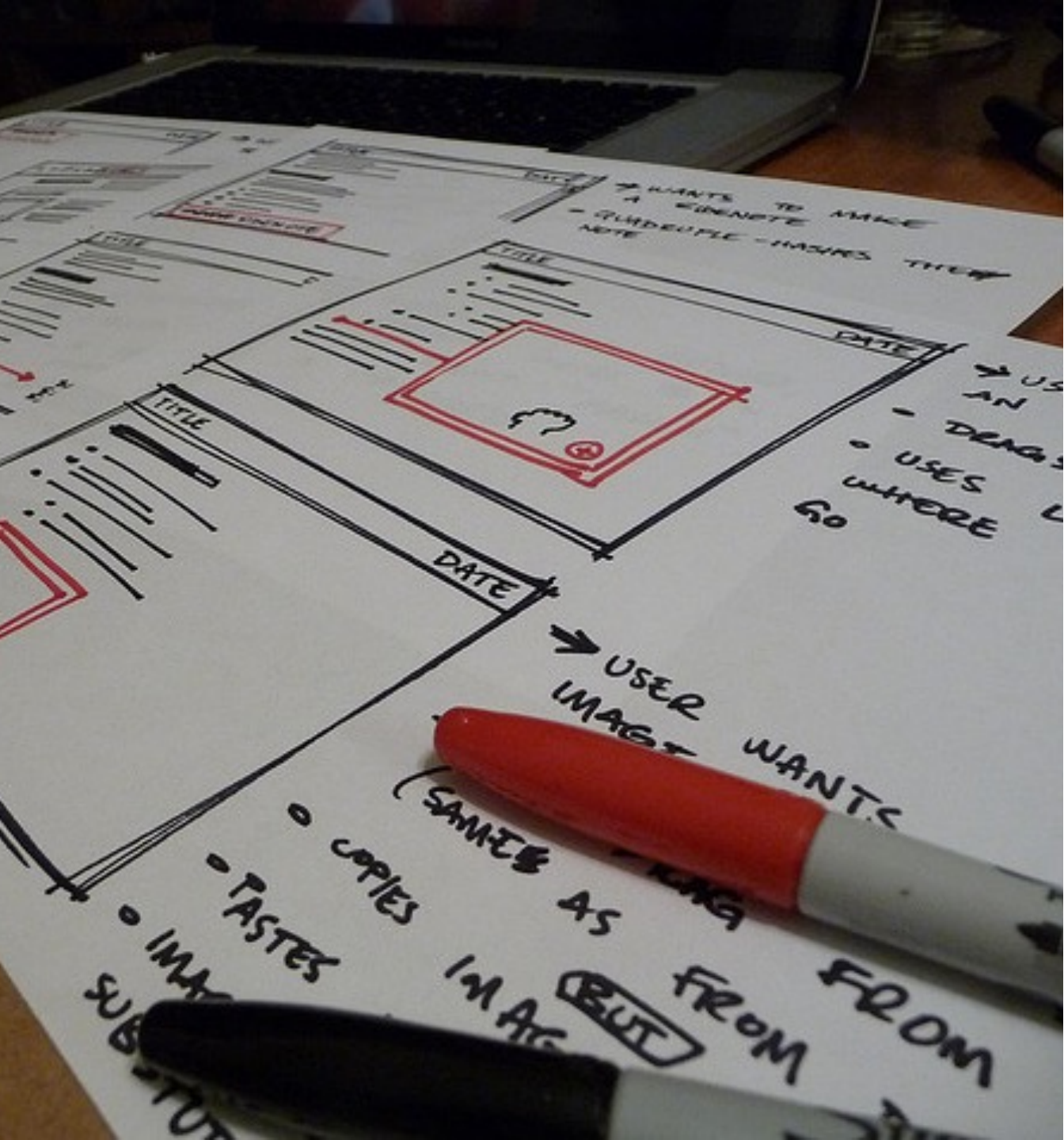
Welcome back to ASpida project and thank you for participating in the study so far!

 vs.vasileiou@gmail.com (not shared) [Switch account](#) 

* Required

This project is funded by the Brain, Mind, and Pain, Patient-centred Innovation Grant





Part III: Prototyping processes of change procedures

- What is a sketching prototyping?
- How to use a sketching prototyping?
- Low and High-fidelity prototyping
- Group task paper prototyping

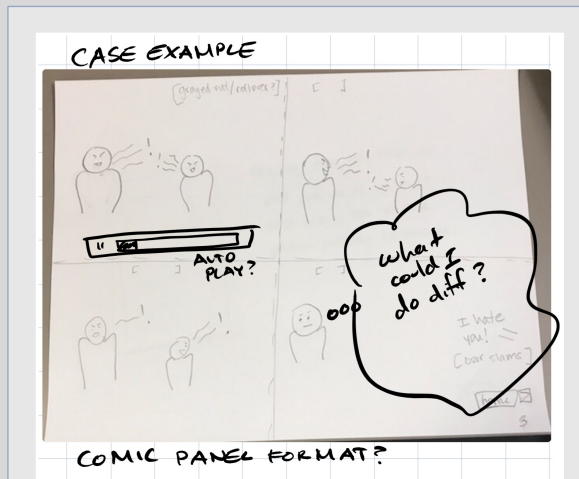
What is a prototype

”Prototypos” in Greek means

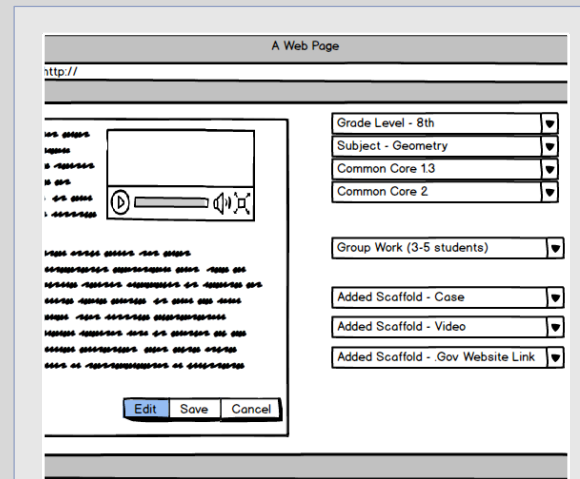
- protos = first
- typos = pattern or impression

Prototypos is an initial, raw representation of an idea

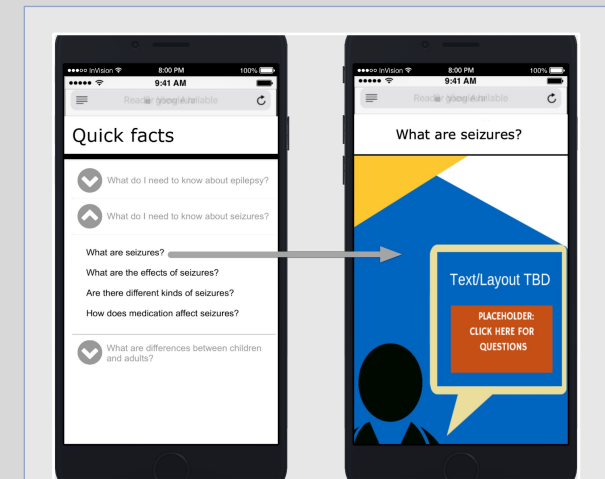
Three types of Prototyping



Rapid Prototyping



Wireframing



Functional Prototyping

What type of prototypes?

Conceptually

- Prepare some early ideas of what might you think a process of change procedure would be best delivered digitally
- Present a raw representation of the process of change you want to prototype

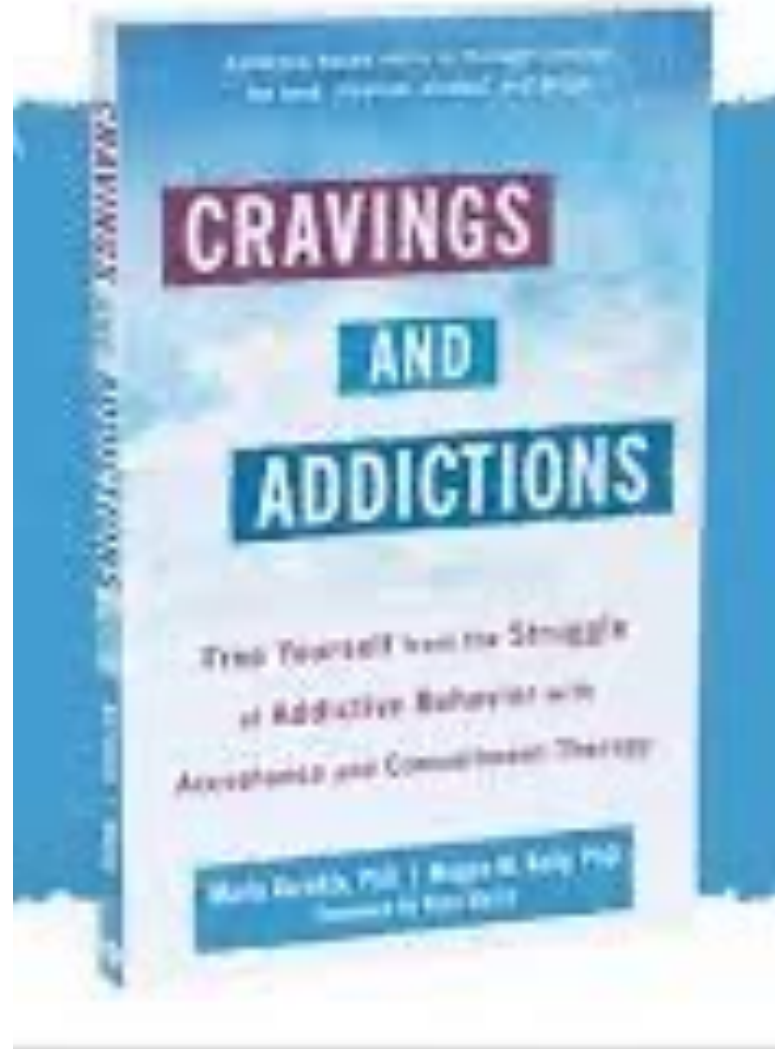
Technically (paper or computer-based)

Moodboards

Sketches

Storyboards

Simulations

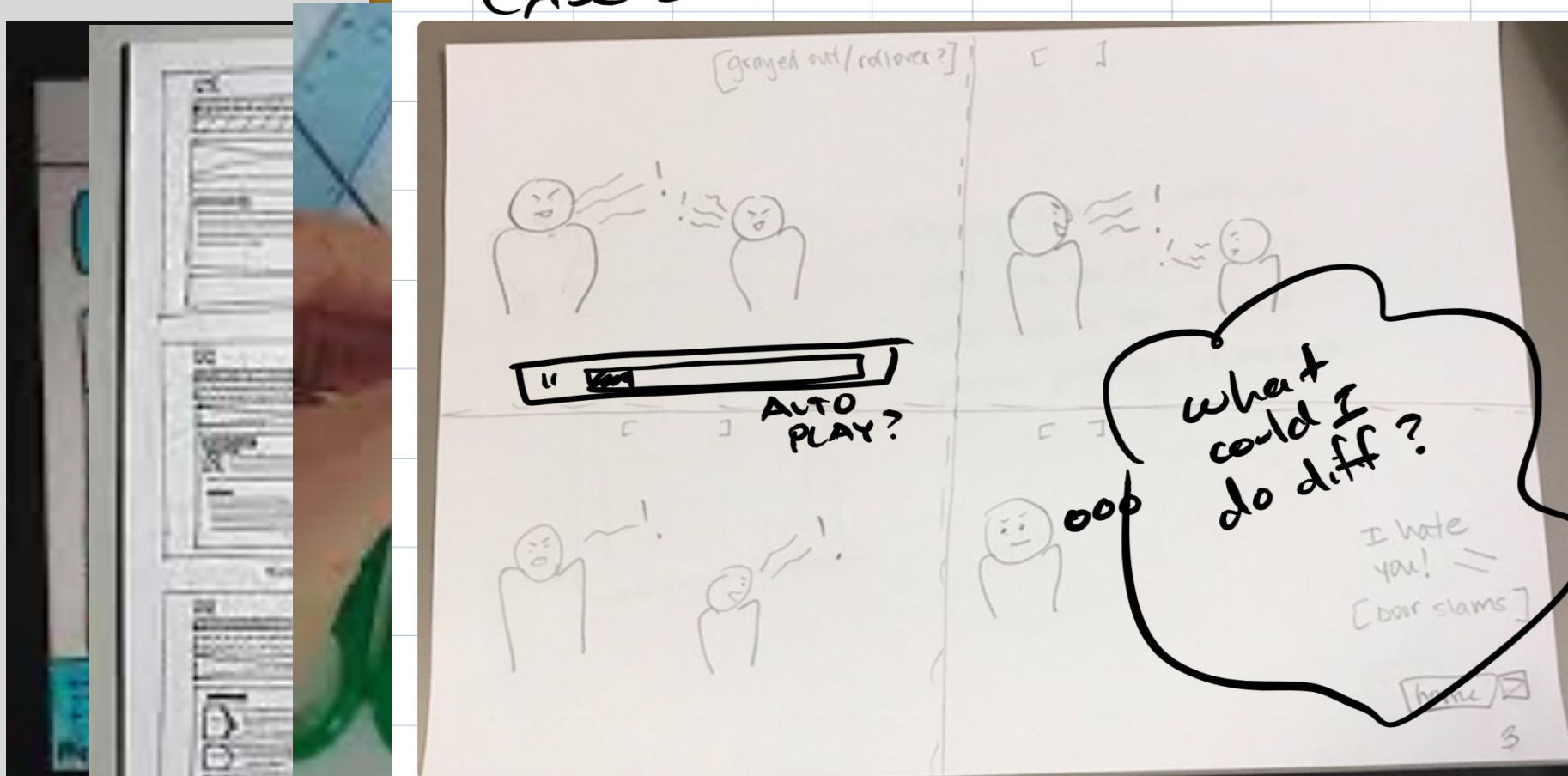


Prototyping is about managing our urges!

- The first idea is
 - raw- not ready
 - Possibly not the best one
 - Used as an ideation of different ways to deliver the process of change procedure
 - Possibly not for use
- What you have to do?
 - Manage your enthusiasm
 - Urge surfing

Sketch prototypes

CASE EXAMPLE



COMIC PANEL FORMAT?

Task 1: Rapid Prototyping

Early ideas generation

***Let's try to
sketch
prototyping***

- Develop a digital intervention
- Delivery cognitive defusion
 - Notice the thoughts while holding them light
- Define the target population

PRAGMATISM

If you go along with that thought, buy into it, and let it control you, where does that leave you? What do you get for buying into it? Where do you go from here? Can you give it a go anyway, even though your mind says it won't work?

INTERESTED

That's an interesting thought.

MEDITATIVE

Let your thoughts come and go like: passing clouds; cars driving past your house; etc.

YOUR MIND IS LIKE

- a "don't get killed" machine
- a word machine
- radio "doom and gloom"
- a masterful salesman
- the world's greatest story teller
- a fascist dictator
- a judgment factory

BULLYING REFRAME

What's it like to be pushed around by that thought/belief/idea? Do you want to have it run your life, tell you what to do all the time?

PROBLEM SOLVING

This is just your mind problem solving. You're in pain, so your mind tries to figure out a way to stop the pain. Your mind evolved to solve problems. This is its job. It's not defective; it's doing what it evolved to do. But some of those solutions are not very effective. Your job is to assess whether your mind's solutions are effective: do they give you a rich and full life in the long run?

WORKABILITY

If you let that thought dictate what you do, how does it work in the long run? Does buying into it help you create a rich, full, and meaningful life?

SECONDARY GAINS

When this thought shows up, if you take it at face value/go along with it/let it tell you what to do, what feelings, thoughts, or situations might it help you avoid or escape from (in the short run)?

FORM AND LOCATION

What does that thought look like? How big is it? What does it sound like? Your voice or someone else's? Close your eyes and tell me, where is it located in space? Is it moving or still? If moving, in what direction and at what speed?

COMPUTER SCREEN

Imagine this thought on a computer screen. Change the font, color, and format. Animate the words. Add in a bouncing ball.

INSIGHT

When you buy into this thought, or give it all your attention, how does your behavior change? What do you start or stop doing when it shows up?

NAMING THE STORY

If all these thoughts and feelings were put into a book or movie, titled "the *something something* story," what would you call it? Each time this story shows up, name it: "Aha, there's the XYZ story again!"

NOTICING

Notice what your mind is telling you right now. Notice what you're thinking.

THE OBSERVING SELF

Take a step back and look at this thought from your observing self.

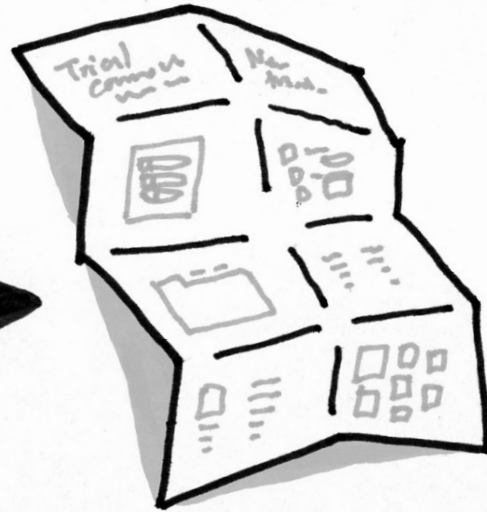
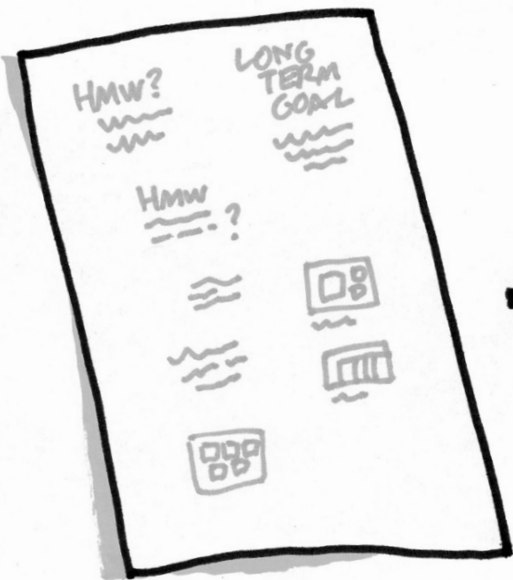
THOUGHTS**THE CLASSICS**

I'm having the thought that ...
Say it in a silly voice.
Sing it.
Say it very slowly.
Repeat it quickly over and over.
Write thoughts on cards.
Passengers on the Bus Metaphor.
Thank your mind for that thought.
Who's talking here: you or your mind?
Leaves on a Stream Exercise.
How old is that story?

Cognitive defusion techniques galore

Crazy 8s

- This is a pair- task
- Fold a single piece of A4 paper in half three times, creating 8 panels
- A fast-paced exercise. Each dyad rapidly sketches 8 (different) ideas for delivering cognitive defusion.
- Crazy 8s forces you to push past your first reasonable solutions and make them better, or at least consider alternatives.



WELCOME BACK



QUICK ORDER
 GIANT STEPS
 BLUE BOW
 DECAF BLEND

QUICK REORDER IN 3 CLICKS

SIGNED IN HOME

RECENT PURCHASES AND FAVORITE BLENDS

1st CLICK
TELL US WHAT YOU WANT

QUICK ORDER

GIANT STEPS
 BLUEBOW
 DECAF BLEND

ADD TO CART or CHECKOUT

2nd CLICK
QUANTITY, KEEP SHIPPING?

CONFIRM ORDER

GIANT STEPS
- SHIP TODAY, FRESH POLICY

ADD ITEMS	SHIPPING	TOTAL
BLIND	---	\$ -
CHANGE	CHANGE	

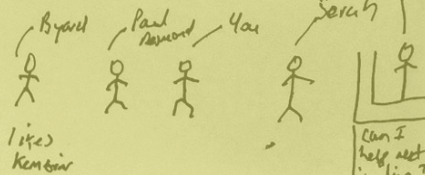
PURCHASE

3rd CLICK

CONFIRM, DONE!

SOCIAL SCENE

See the famous BB line on screen —
Click on each person so you can see what they are ordering - whats hot!



Brix
You can use help to chat in line

CHECK YOUR LEVEL Just like ski's

⊙ Easy →
- Filter
- Drip
- Espresso

⊙ Advanced
looking for something

Smooth → Bold
Destructive → Bold
Finely → Earthy

List best sellers by use with ~~img~~
images of use + product

Go deeper into
• Single origin
• Small lots
• Whats Hot
This week Diver's stand → guest choice

THE "CART CONVERTER"

HTTP://BBC.COM/CART

SHOPPING CART

☐ x 2 = \$35

☑ Hey! Turn this order into a subscription, we'll send this to you every 4 wks.

Shopping Cart Page
→ Intuitive selector

HTTP://BBC.COM/CONFIRM

OK Byron, we got you down for 2lbs of Hanes Velly Every 4 wks. We'll ship your first order today; your next fresh roast of Patrick 4 wks from now.

Adjust | Confirm

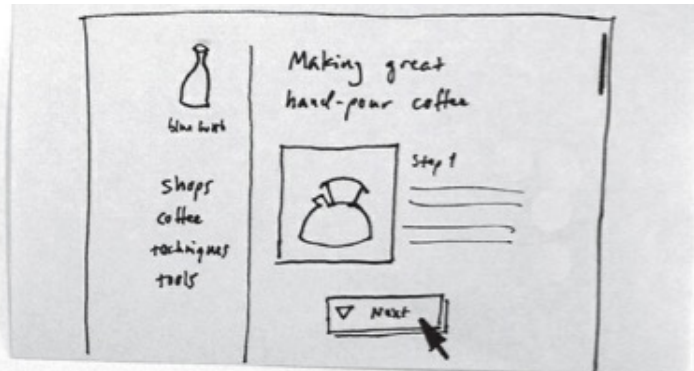
HTTP://BBC.COM/SUCCESS!!

Success! You're now signed up for the ultimate in fresh coffee experience

Click here to adjust
Click here to cancel @ anytime

Click here to tell a loved one about our subscriptions & how cool

Search...
"pour over coffee"
leads here...



click next to advance... scroll bar also works.

photos should be clear and high quality, but not too trendy - we want this to be accessible!

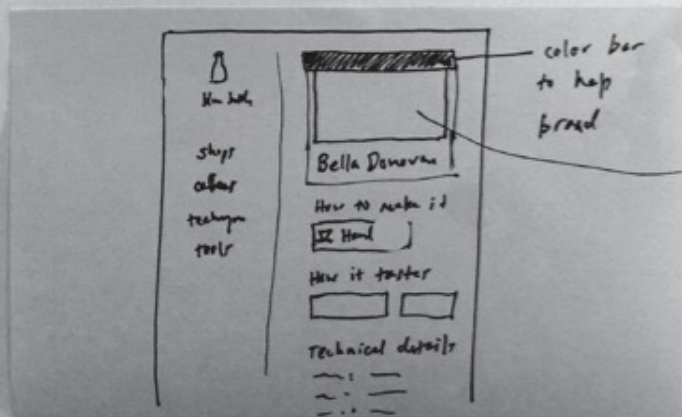
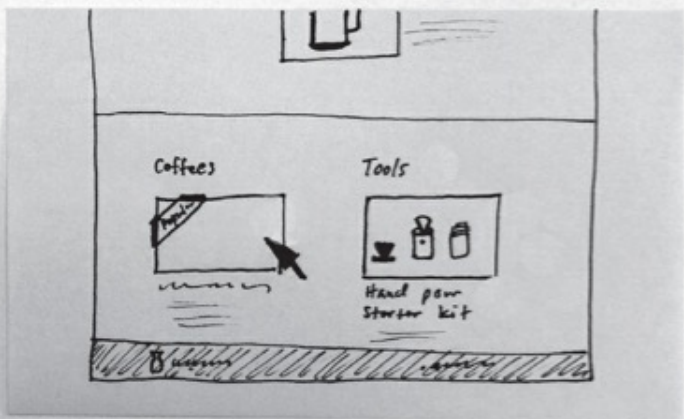


photo doesn't have to be at best/package



minutes per group + questions



<http://e.ggtimer.com/>

Task 2: Wireframing

Further prototyping refinement

How to prototype?

<https://www.youtube.com/watch?v=B7M0fVXdovM>

<https://www.youtube.com/watch?v=yafaGNFu8Eg>

Maryam Tohidi, William Buxton, Ronald Baecker, and Abigail Sellen. 2006. Getting the right design and the design right. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '06), ACM, New York, NY, USA, 1243-1252.

*How to
prototype?*



*How to
prototype?*



Prototyping a wireframe should make users to do something (a task)!

We want users to experience (elicit emotional reactions) or do something

- A task
- An activity
- An experiential exercise


We want users to see, touch, and feel:

- What the navigation of the process of change procedure might look like
- The layout of the screens
- Some early steps and buttons or what the user's encounter
- How the story/metaphor/exercise unfolds digitally

Writing My Story



***AN
EXAMPLE
OF
WIREFRAME
PROTOTYPE***



***AN
EXAMPLE
OF
WIREFRAME
PROTOTYPE***

CREATED USING
POWTOON

0:00/2:43 | POWTOON 🔊 ↗

Wireframe Prototyping [paper-based]

Pick your best “crazy 8” idea and expand the detail

Imagine you are developing a more detailed prototype of cognitive defusion, embedded in the intervention, and guide a user in getting the experience of CDefusion

Just good enough that a user can **experience** how CDefusion (or part of it) is delivered in the digital intervention

Prototype should allow you test how to deliver Cdefusion in one specific task

Evaluation methods in Prototyping

Method	Design phase			Data source	
	Front-end analysis	Prototyping			
		Paper (low fidelity)	Wireframe (medium fidelity)		Functional (high fidelity)
Ethnography	•			Single user or users	
Focus groups	•	•		Group of users	
Card sorting	•	•		Single user, multiple users or group of users	
Cognitive walkthrough		•	•	Expert	
Heuristic evaluation		•	•	Experts	
A/B testing		•	•	Multiple users	
Think-aloud				•	Multiple users
EEG/ Eyetracking				•	Multiple users
Analytics				•	Multiple users

User test and iteration



recruit one person from another team to serve as a participant



ask them to use your sketching prototype to undertake the task it is designed to fulfill



Find, record, and fix problems

Prepare presentation



5 minutes per group



State goal for project



Show us your prototype

Presentations and prizes



5 minutes per group +
questions



<http://e.ggtimer.com/>



Take home

- There are many ways to work successfully with users during the design process
- None of them are inherently correct, or useful – or incorrect and un-useful
 - Focus on understanding users' values, their experiences, their habits
 -Rather than asking them to speculate
 - Establishing dialogue between designers, users and communities

Literature

- Books:
 - Linehan, C., Kirman, B., & Roche, B. (2015). Gamification as behavioral psychology. In *The gameful world: Approaches, issues, applications* (pp. 81-105). MIT Press.
 - van Gemert-Pijnen, L., Kelders, S. M., Kip, H., & Sanderman, R. (2018). *eHealth research, Theory and Development*. New York: Routledge.
 - Bate, P., & Robert, G. (2007). *Bringing user experience to healthcare improvement: the concepts, methods and practices of experience-based design*. Radcliffe Publishing.
- Relevant Papers:
 - Karekla, M, Kassinopoulos, O., & **Vasiliou, S.V.** (under review). Overcoming challenges in digital interventions: The development of the ALGEApp for chronic pain management. *Internet Interventions*
 - Karekla, M., Savvides, S.N., & Gloster, A. (2020). An Avatar-led Intervention Promotes Smoking Cessation in Young Adults: A Pilot Randomized Clinical Trial. *Annals of Behavioral Medicine*, 1-14. doi: [1093/abm/kaaa013](https://doi.org/10.1093/abm/kaaa013).
 - Vasiliou, V. S., Dockray, S., Dick, S., Davoren, M. P., Heavin, C., Linehan, C., & Byrne, M. (2021). Reducing drug-use harms among higher education students: MyUSE contextual-behaviour change digital intervention development using the Behaviour Change Wheel. *Harm reduction journal*, 18(1), 1-23.
 - Rapp, A., Hopfgartner, F., Hamari, J., Linehan, C., & Cena, F. (2019). Strengthening gamification studies: Current trends and future opportunities of gamification research. *International Journal of Human-Computer Studies*, 127, 1-6.

Thank you for your attention

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[Cyprus Island, Akamas beach]





NEXT YEAR... LOOKING FORWARD TO HOSTING YOU... HERE....

