

Visibility Review



Image of phone hardware recreated in PowerPoint
by Ian Michael Hosking based on a product image of the Nokia Lumia 830
and reused throughout the document

Product Name	Nokia Lumia
Model	830 WP 10.0.10536.1004
Reviewer	Ian Hosking
Date	July-Sept 2015

Context

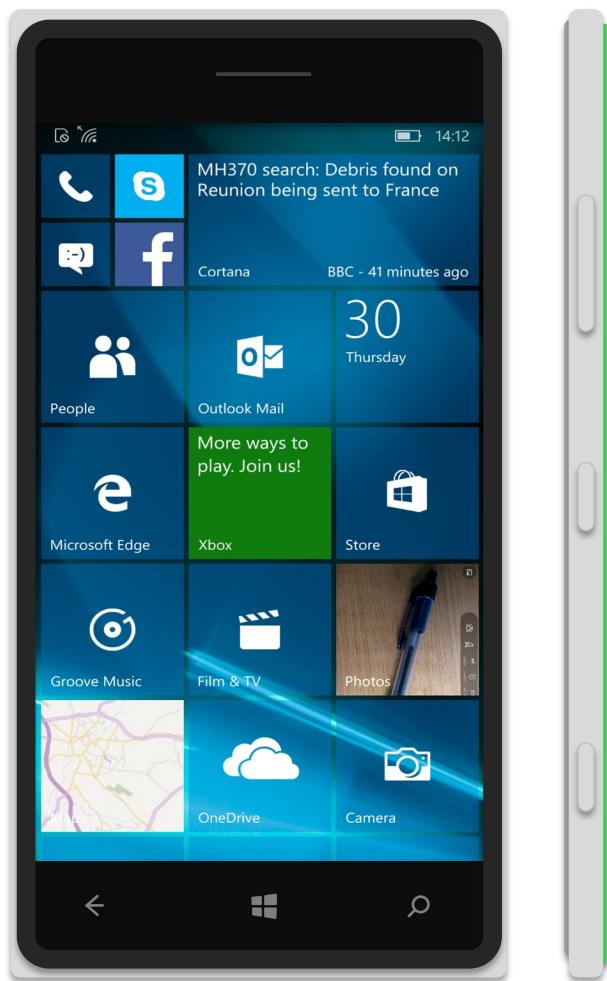
User	Familiar with mobile phones but not Windows Phone
Environment	Well lit room
Task Goal	Take a selfie and email it to a specified email address
Notes	

Initial state	Phone is in locked state
1	Unlock phone
2	Enter Pin
3	Start camera
4	Switch to front facing camera
5	Compose picture
6	Take picture
7	View picture
8	Create email with picture
9	Enter email address (<name>@<address>)
10	Enter title ("Hello from Cambridge")
11	Email message ("Me at the Engineering Department <CR> <Name>")
12	Send
13	Return to home screen
14	Put into locked state

Analysis Notes

- WP 10.0.10536.1004 is a pre-release build
- Descriptions of the interface try to be consistent with the Windows Phone 8.1 manual (10 is in beta and has no manual) and the Nokia Lumia 830 manual
- Colour theme is blue. Other themes available impact contrast
- Steps around text input and editing are amalgamated to avoid the report becoming too lengthy. However the cursor modes in particular are complex and lack visibility
- Task route options can proliferate around text editing in particular or message creation. For brevity they have been simplified.
- Additional info or PIN entry correction and global navigation keys are summarised

Product Overview



Eye view



Visibility Rating Scale – Parameters

Can I focus my eyes on it?

Can I correctly interpret what it is?

Does it grab my attention when required?

Can I resolve the key features?

Can I tell it apart from other objects?

Concept

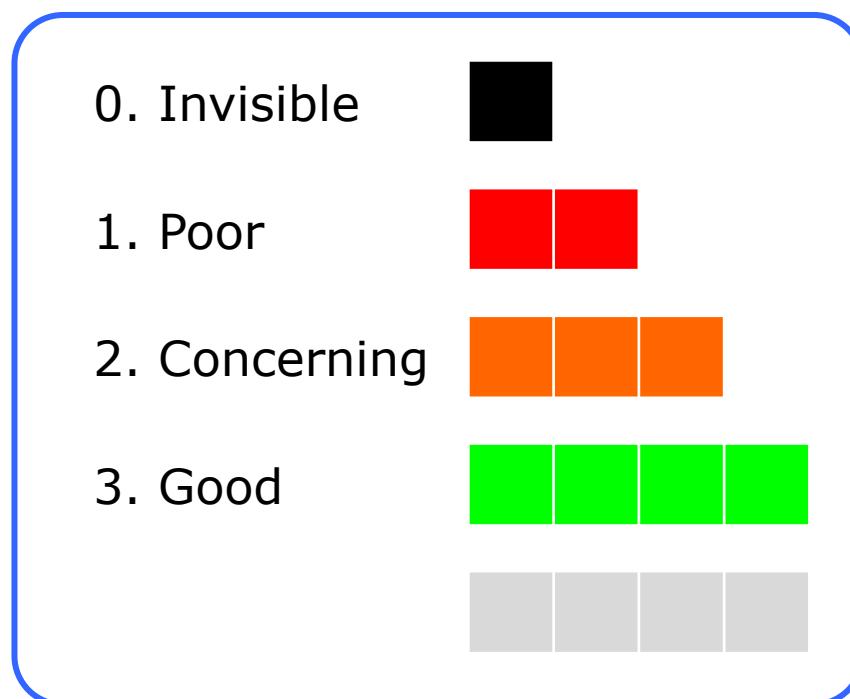
Focus

Conspicuity

Clarity

Differentiation

Visibility Rating Scale - Parameters



0. Invisible	No visibility and is highly likely to cause usability issues
1. Poor	An issue likely to contribute to some level of usability problem
2. Concerning	An issue that may lead to usability problems
3. Good	Unlikely to directly cause usability problems
N.B. Some visibility issues can be overcome to a degree by prior knowledge. Prior knowledge when widely held becomes convention.	
'A' is put in the box when a function is automatic	

Visibility Rating Scale – Aspects

Concept	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Focus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Conspicuity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clarity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Differentiation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Function

Function

Interpreting what the UI element does in relation to the task (e.g. print the current document)

Concept	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Focus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Conspicuity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clarity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Differentiation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Operation

Operation

Interpreting how the UI element can be controlled (e.g. it is a button that initiates the printing sequence)

Concept	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Focus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Conspicuity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clarity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Differentiation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Feedback

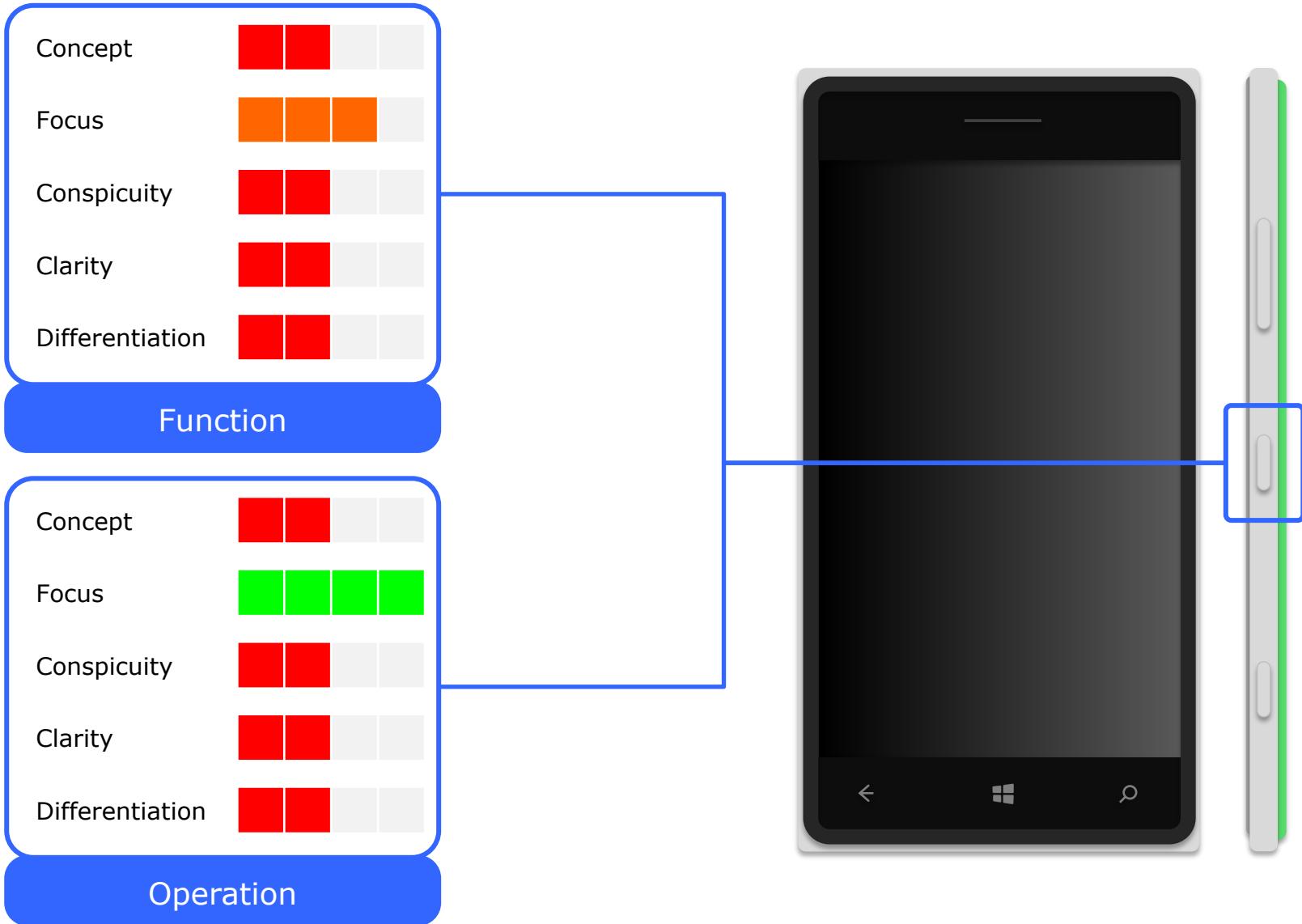
Feedback

Interpreting the status of the operation that has been undertaken (e.g. the document has been sent to the printer)

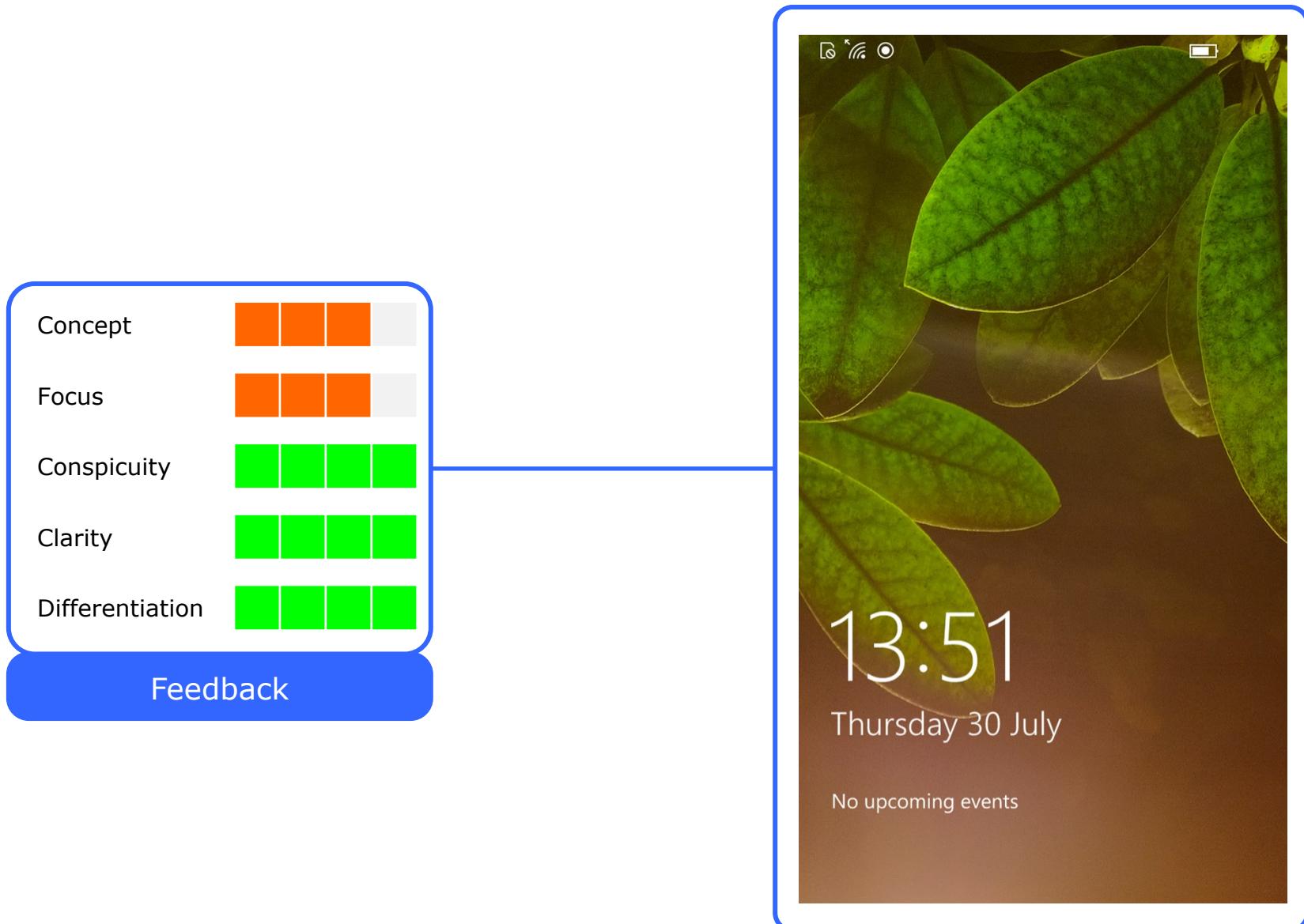
Device is on but screen and keys (volume) are locked. The screen is blank



1. Unlock phone



Feedback



FUNCTION ANALYSIS: 1. Unlock phone

Aspect	Question	Answer	Score	
Concepts				
	What is the concept of the 'function'?	A physical dedicated lock button (that 'operates' by a short press) N.B. the button is also the power button		
	How is the concept conveyed visually?	Narrow rectangular shape that is proud of the surrounding frame		
	Is it a familiar concept to the user? (check against real examples)	Dedicated power+lock buttons are common but not necessarily well understood due to the functional overloading		
	How well is the concept represented & are there elements missing ?	There is no label or symbol to indicate its function. There is no distinction between 'lock' and 'power'		
	Are there general variations of this concept that could cause confusion ?	Yes. Keys can be overloaded and other phones have it at the top or front. Some keys like this can be sliders.		
Line of sight & focus				
	Does the user have to move to get line of sight?	Yes if looking at the front. Can be done by moving the phone in the hand		
	Can the user focus on it? (bi or vari focal glasses)	Can move the arm to bring it into focus		
Conspicuity				
	Is it in the central visual field?	It is on the side and therefore may not be if the phone is held face on.		
	Is it where the user would expect it to be?	Phone lock buttons have varied locations e.g. the top		
	How many other related elements are there?	1 of 3 on the side (camera & volume)		
	Does it stand out against other elements/background?	The contrast is poor (silver on silver) and there are 2 other similar buttons on the same side		
Clarity				
	What are the key distinguishing features?	Size	Contrast	
	- Button edge	Okay	Very poor (silver on silver)	
	- Shape	Okay	Very poor (silver on silver)	
Differentiation				
	How different is it from other elements visible at the same time?	There are two other silver on silver buttons with no labels		
	How different is it from other elements visible at other times?	The UI is all on screen with nothing similar		
	Could it be confused with commonly used graphics/symbols that indicate something different?	Plain silver buttons are not associated with specific functions		

OPERATION ANALYSIS: 1. Unlock phone

Aspect	Question	Answer		Score
Concepts				
	What is the concept of the 'operation'?	Operates by a short press		
	How is the concept conveyed visually?	Shape that is proud of the surrounding frame		
	Is it a familiar concept to the user? (check against real examples)	Short presses are very common		
	How well is the concept represented & are there elements missing ?	The duration of the required press is not indicated in comparison to the power function		
	Are there general variations of this concept that could cause confusion ?	Yes. Variation in duration and activation e.g. when duration met or when met and released. Different functional overloading e.g. power key on older phones is also global exit.		
Line of sight & focus				
	Does the user have to move to get line of sight?	Assume already looking at it		
	Can the user focus on it? (bi or vari focal glasses)	Can move the arm to bring it into focus		
Conspicuity				
	Is it in the central visual field?	Assume already looking at it		
	Is it where the user would expect it to be?	Yes if identified as power+lock button		
	How many other related elements are there?	It is a single button		
	Does it stand out against other elements/background?	The contrast is poor between the button and its surround		
Clarity				
	What are the key distinguishing features?	Size	Contrast	
	- Button edge	Okay	Very poor (silver on silver)	
	- Shape	Okay	Very poor (silver on silver)	
Differentiation				
	How different is it from other elements visible at the same time?	Assume already looking at it but the button and the surrounding frame have poor contrast		
	How different is it from other elements visible at other times?	There are no silver buttons used on the screen		
	Could it be confused with commonly used graphics/symbols that indicate something different?	Plain silver buttons are not associated with specific functions		

FEEDBACK ANALYSIS: 1. Unlock phone

Aspect	Question	Answer	Score
Concepts			
	What is the concept of the 'feedback'?	The screen comes on	
	How is the concept conveyed visually?	The lock screen is displayed	
	Is it a familiar concept to the user? (check against real examples)	User are likely to be familiar with screens coming on e.g. TV's and computers	
	How well is the concept represented & are there elements missing ?	The whole screen coming on is a large change. The lack of indication of the fact that the screen is locked causes problems later.	
	Are there general variations of this concept that could cause confusion ?	There are different approaches between 'power' and 'lock'	
Line of sight & focus			
	Does the user have to move to get line of sight?	They would need to turn the front face towards them	
	Can the user focus on it? (bi or vari focal glasses)	Can move the arm to bring it into focus	
Conspicuity			
	Is it in the central visual field?	The whole screen changes from blank to 'lit'	
	Is it where the user would expect it to be?	Yes - unlikely to confuse the location of the screen with the back of the phone	
	How many other related elements are there?	1 of 2 but the back has a camera to distinguish it	
	Does it stand out against other elements/background?	Clearly lights up. Theoretical problem if image on screen is dark and low contrast.	
Clarity			
	What are the key distinguishing features?	Size	Contrast
	- Entire screen area	Large	Large change in contrast
Differentiation			
	How different is it from other elements visible at the same time?	The whole screen changes	
	How different is it from other elements visible at other times?	The whole screen changes	
	Could it be confused with commonly used graphics/symbols that indicate something different?	The whole screen changes	

Usability Problem Prediction

Task Step: 1. Turn phone on				
Issue	Visibility problem	Probability	Impact	Rationale
Not finding the power+lock button at all	All	Very Low	High	Very poor contrast but the user would expect there to be a button therefore low probability
Only finding the power+lock button by trial and error e.g. pressing the camera or volume keys N.B. pressing camera key will launch the camera and potentially cause a whole sequence of problems	All	High	Low	It is one of 3 silver buttons that have no labelling
Not pressing the button for long enough leading to rejection that it is the correct button	Concept presentation	Very Low	High	The button press is short (unlike power function) so very unlikely
Confusion between lock & power state i.e. the user may press for too long and go into power off sequence	Concept presentation	Low	High	The power button off state requires a longer press. This may be done accidentally.

2a. Enter PIN (reveal PIN entry dialogue)

Concept

Focus

Conspicuity

Clarity

Differentiation

Function

Concept

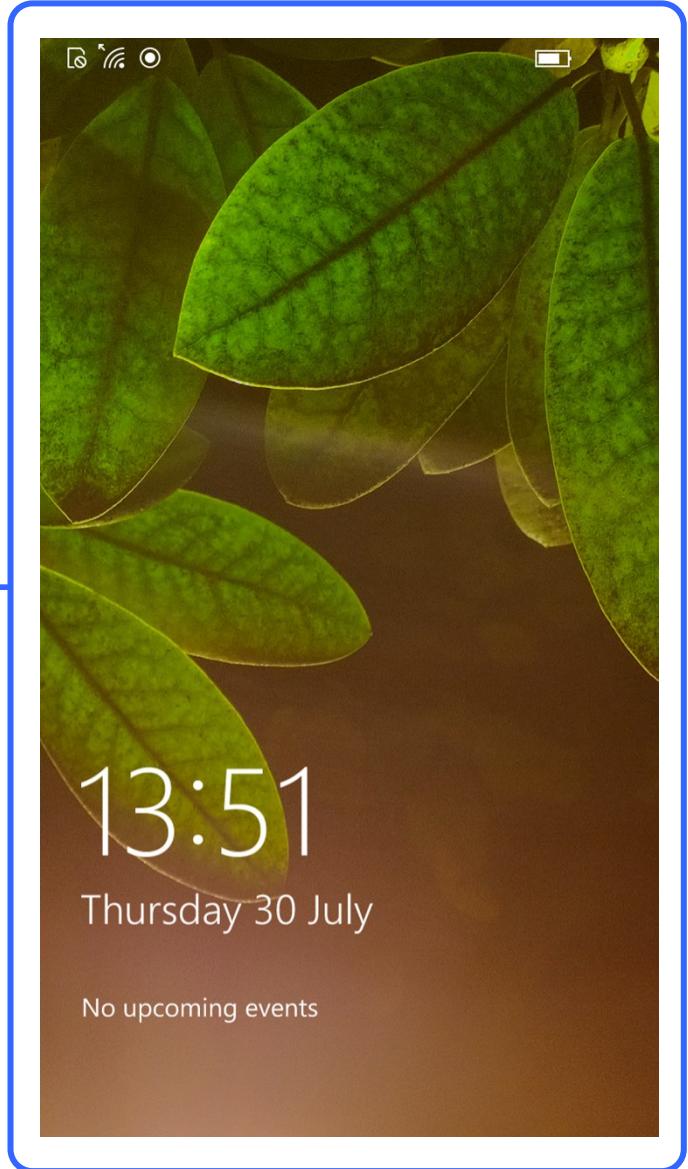
Focus

Conspicuity

Clarity

Differentiation

Operation



Feedback

Concept

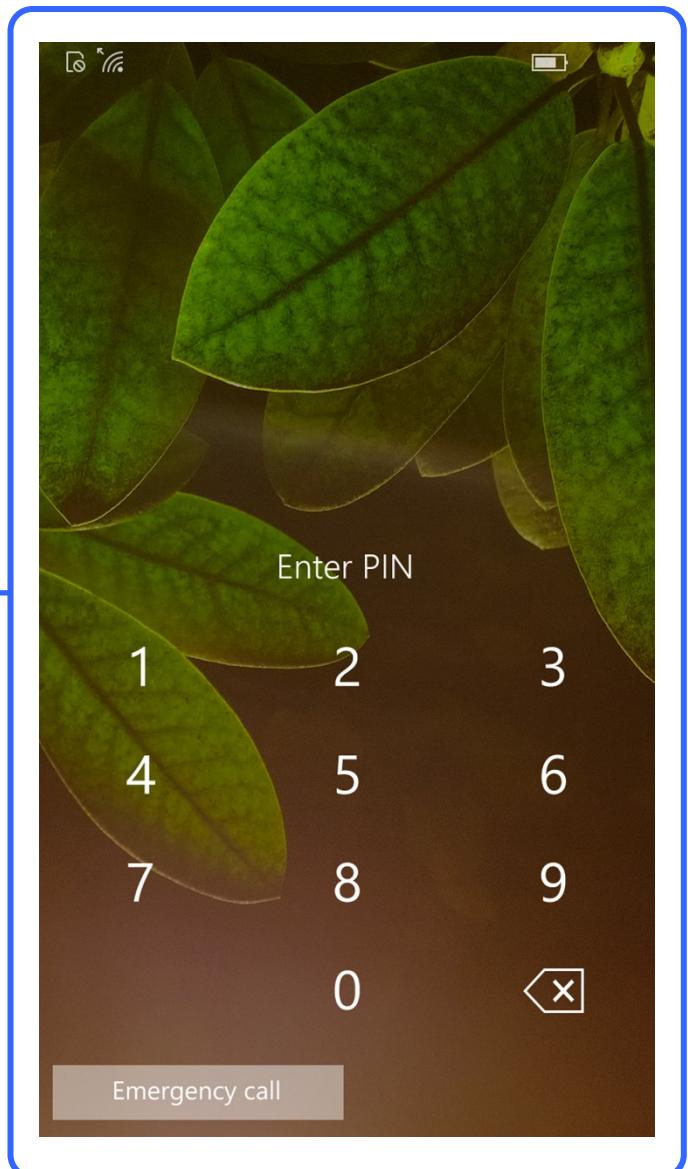
Focus

Conspicuity

Clarity

Differentiation

Feedback



FUNCTION ANALYSIS: 2a. Enter PIN (reveal PIN Entry Screen)

Aspect	Question	Answer	Score
Concepts			
	What is the concept of the 'function'?	A slider from bottom	
	How is the concept conveyed visually?	Nothing explicit is shown on the lock screen	
	Is it a familiar concept to the user? (check against real examples)	Yes. Other devices have slide to unlock but with some form of indication and it is typically horizontal	
	How well is the concept represented & are there elements missing ?	There are no visual indicators of the function	
	Are there general variations of this concept that could cause confusion ?	Yes. Other devices have slide to unlock but with some form of indication and is typically horizontal	
Line of sight & focus			
	Does the user have to move to get line of sight?	No	
	Can the user focus on it? (bi or vari focal glasses)	Can move the arm to bring it into focus	
Conspicuity			
	Is it in the central visual field?	It is the bottom half of the screen which is large and in view	
	Is it where the user would expect it to be?	If familiar with slide to unlock	
	How many other related elements are there?	4 icons, date, time, upcoming event	
	Does it stand out against other elements/background?	It is invisible	
Clarity			
	What are the key distinguishing features?	Size	Contrast
	- No features directly related to function	Invisible	Invisible
Differentiation			
	How different is it from other elements visible at the same time?	Invisible	
	How different is it from other elements visible at other times?	Invisible	
	Could it be confused with commonly used graphics/symbols that indicate something different?	Invisible	

OPERATION ANALYSIS: 2a. Enter PIN (reveal PIN Entry Screen)

Aspect	Question	Answer	Score
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Concepts

	What is the concept of the 'operation'?	An invisible slider from bottom with only the bottom half of the screen enabling a full swipe (upper half active)	
	How is the concept conveyed visually?	Nothing explicit is shown on the lock screen	
	Is it a familiar concept to the user? (check against real examples)	Yes. Other devices have slide to unlock but with some form of indication and they are typically horizontal	
	How well is the concept represented & are there elements missing ?	There are no visual indicators of the operation	
	Are there general variations of this concept that could cause confusion ?	Yes. Other devices have slide to unlock but with some form of indication and is typically horizontal	

Line of sight & focus

	Does the user have to move to get line of sight?	Assume already looking at it	
	Can the user focus on it? (bi or vari focal glasses)	Can move the arm to bring it into focus	

Conspicuity

	Is it in the central visual field?	Assume already looking at it	
	Is it where the user would expect it to be?	Yes if identified as a slider	
	How many other related elements are there?	Date, time and upcoming events	
	Does it stand out against other elements/background?	It is invisible	

Clarity

	What are the key distinguishing features?	Size	Contrast	
	- No features directly related to function	Invisible	Invisible	

Differentiation

	How different is it from other elements visible at the same time?	Invisible	
	How different is it from other elements visible at other times?	Invisible	
	Could it be confused with commonly used graphics/symbols that indicate something different?	Invisible	

FEEDBACK ANALYSIS: 2a. Enter PIN (reveal PIN Entry Screen)

Aspect	Question	Answer	Score
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Concepts

	What is the concept of the 'feedback'?	A moving date and time transitioning to a PIN pad	
	How is the concept conveyed visually?	Instantaneous movement of date and time with the swipe action	
	Is it a familiar concept to the user? (check against real examples)	Touch devices tend to have a slide or whole screen reveal	
	How well is the concept represented & are there elements missing ?	The moving date and time is unusual and lacks contrast. When PIN entry is not required the whole screen slides up which is inconsistent	
	Are there general variations of this concept that could cause confusion ?	Slide to unlock typically moves the whole screen or part of screen to reveal a keypad	

Line of sight & focus

	Does the user have to move to get line of sight?	Assume already looking at it	
	Can the user focus on it? (bi or vari focal glasses)	Can move the arm to bring it into focus	

Conspicuity

	Is it in the central visual field?	Assume already looking at it	
	Is it where the user would expect it to be?	Yes if identified as a slider	
	How many other related elements are there?	Depends on the background image	
	Does it stand out against other elements/background?	The date and time have poor contrast versus the background image	

Clarity

	What are the key distinguishing features?	Size	Contrast	
	- Moving date and time	Large	Poor against background	

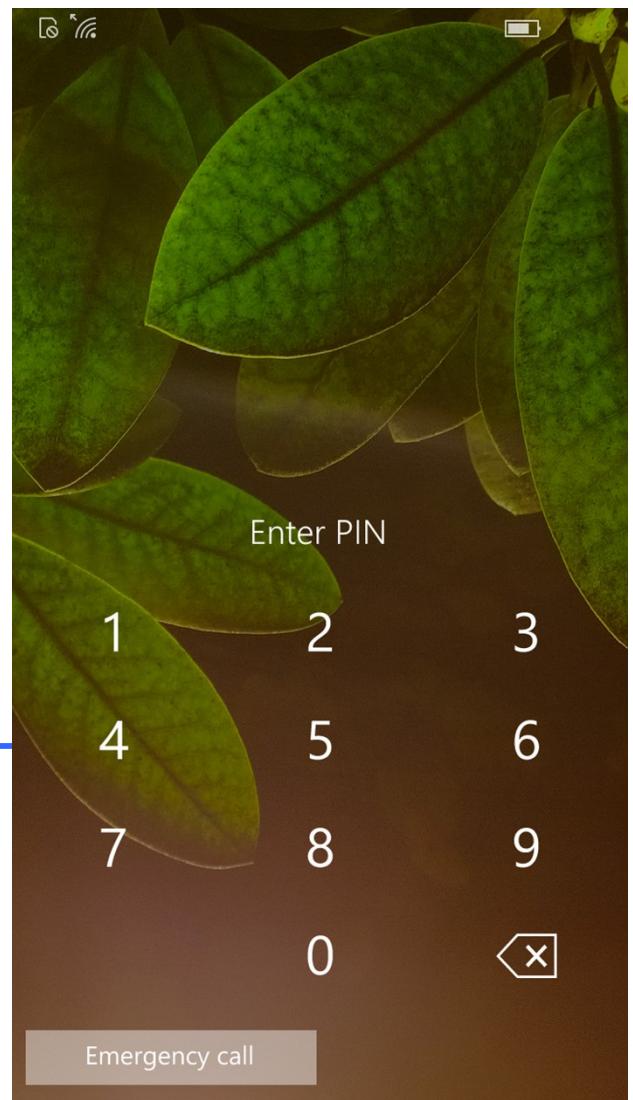
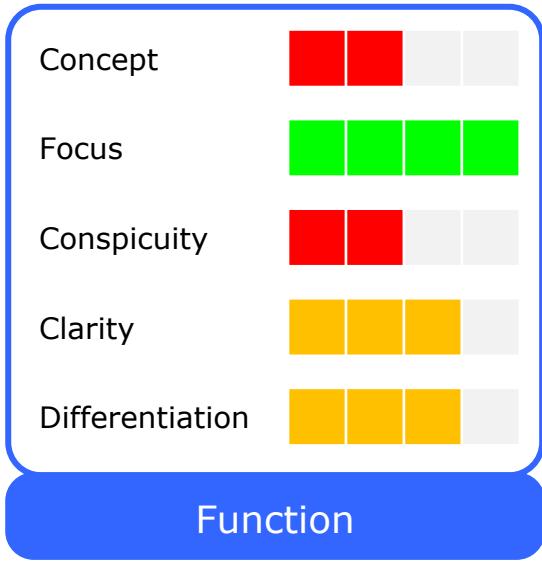
Differentiation

	How different is it from other elements visible at the same time?	The date and time move and the PIN pad appears	
	How different is it from other elements visible at other times?	The date and time moves	
	Could it be confused with commonly used graphics/symbols that indicate something different?	A moving date and time is unusual to indicate a non time function	

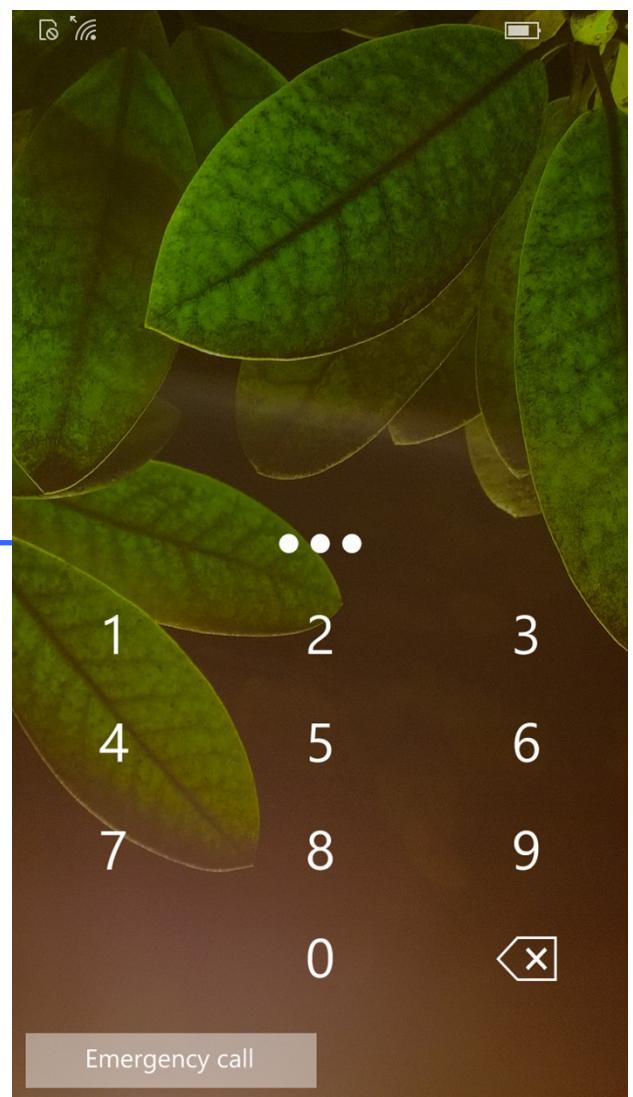
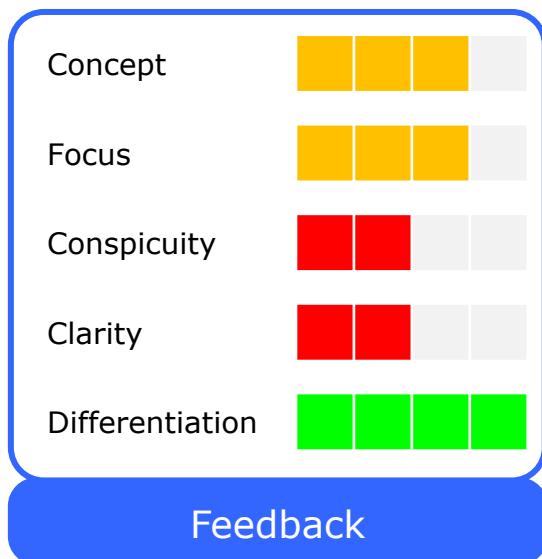
Usability Problem Prediction

Task Step: 2a. Enter PIN (reveal PIN Entry Screen)				
Issue	Visibility problem	Probability	Impact	Rationale
The user fails to identify that there is a slide to unlock function completely	All	Low	High	The control is invisible so it is reliant on prior knowledge or trial and error. The bounce feature on pressing is limited to the date and time
The user fails to initially identify that there is a slide to unlock function	All	High	Low	The control is invisible so it is reliant on prior knowledge or trial and error
The user tries one of the buttons to unlock	All	Medium	High	The control is invisible so it is reliant on prior knowledge or trial and error
The screen times out while the user is trying to work out what to do	All	Low	Low	Quite a long duration time out and the user will probably try again
The users fails to perceive the movement of the date and time when correctly sliding	Clarity	Low	High	The concept is unusual combined with poor contrast and potential obscuration of date and time by the user's hand

2b. Enter PIN (input numbers)



Feedback



FUNCTION ANALYSIS: Enter PIN (input numbers)

Aspect	Question	Answer	Score
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Concepts

	What is the concept of the 'function'?	PIN Pad with automatic 'ok' when required digits entered	
	How is the concept conveyed visually?	Borderless buttons with transparent background	
	Is it a familiar concept to the user? (check against real examples)	PIN pads are relatively common	
	How well is the concept represented & are there elements missing ?	No button border or background	
	Are there general variations of this concept that could cause confusion ?	Buttons tend to be solid with borders	

Line of sight & focus

	Does the user have to move to get line of sight?	No	
	Can the user focus on it? (bi or vari focal glasses)	Can move the arm to bring it into focus	

Conspicuity

	Is it in the central visual field?	The PIN Pad covers about a 3 rd of the screen	
	Is it where the user would expect it to be?	Yes and has large screen coverage	
	How many other related elements are there?	3 icons and emergency call button	
	Does it stand out against other elements/background?	Poor contrast against the background	

Clarity

	What are the key distinguishing features?	Size	Contrast	
	- Numbers	Okay	Poor contrast against background	
	- 'Enter PIN' text	Okay	Poor contrast against background	
	- Delete key	Okay	Poor contrast against background	

Differentiation

	How different is it from other elements visible at the same time?	Numbers are distinctive	
	How different is it from other elements visible at other times?	The lack of button borders could confuse with text e.g. time but layout is distinctive	
	Could it be confused with commonly used graphics/symbols that indicate something different?	Could be confused with dial pad	

OPERATION ANALYSIS: Enter PIN (input numbers)

Aspect	Question	Answer	Score	
Concepts				
	What is the concept of the 'operation'?	Press the number buttons		
	How is the concept conveyed visually?	Borderless transparent buttons		
	Is it a familiar concept to the user? (check against real examples)	PIN entry pads are common e.g. ATM's		
	How well is the concept represented & are there elements missing ?	As above no border or background		
	Are there general variations of this concept that could cause confusion ?	Buttons typically have borders and backgrounds		
Line of sight & focus				
	Does the user have to move to get line of sight?	No		
	Can the user focus on it? (bi or vari focal glasses)	Can move the arm to bring it into focus		
Conspicuity				
	Is it in the central visual field?	The PIN Pad covers about a 3 rd of the screen		
	Is it where the user would expect it to be?	Yes and has large screen coverage		
	How many other related elements are there?	The background image is visible around numbers		
	Does it stand out against other elements/background?	Poor contrast against the background image		
Clarity				
	What are the key distinguishing features?	Size	Contrast	
	- Numbers	Okay	Poor contrast against background	
	- Spacing/layout	Good	Poor contrast against background	
Differentiation				
	How different is it from other elements visible at the same time?	Depends on background image		
	How different is it from other elements visible at other times?	The lack of borders and background could mean numbers are not perceived as buttons but layout is distinctive		
	Could it be confused with commonly used graphics/symbols that indicate something different?	The lack of borders and background could mean numbers are not perceived as buttons but layout is distinctive		

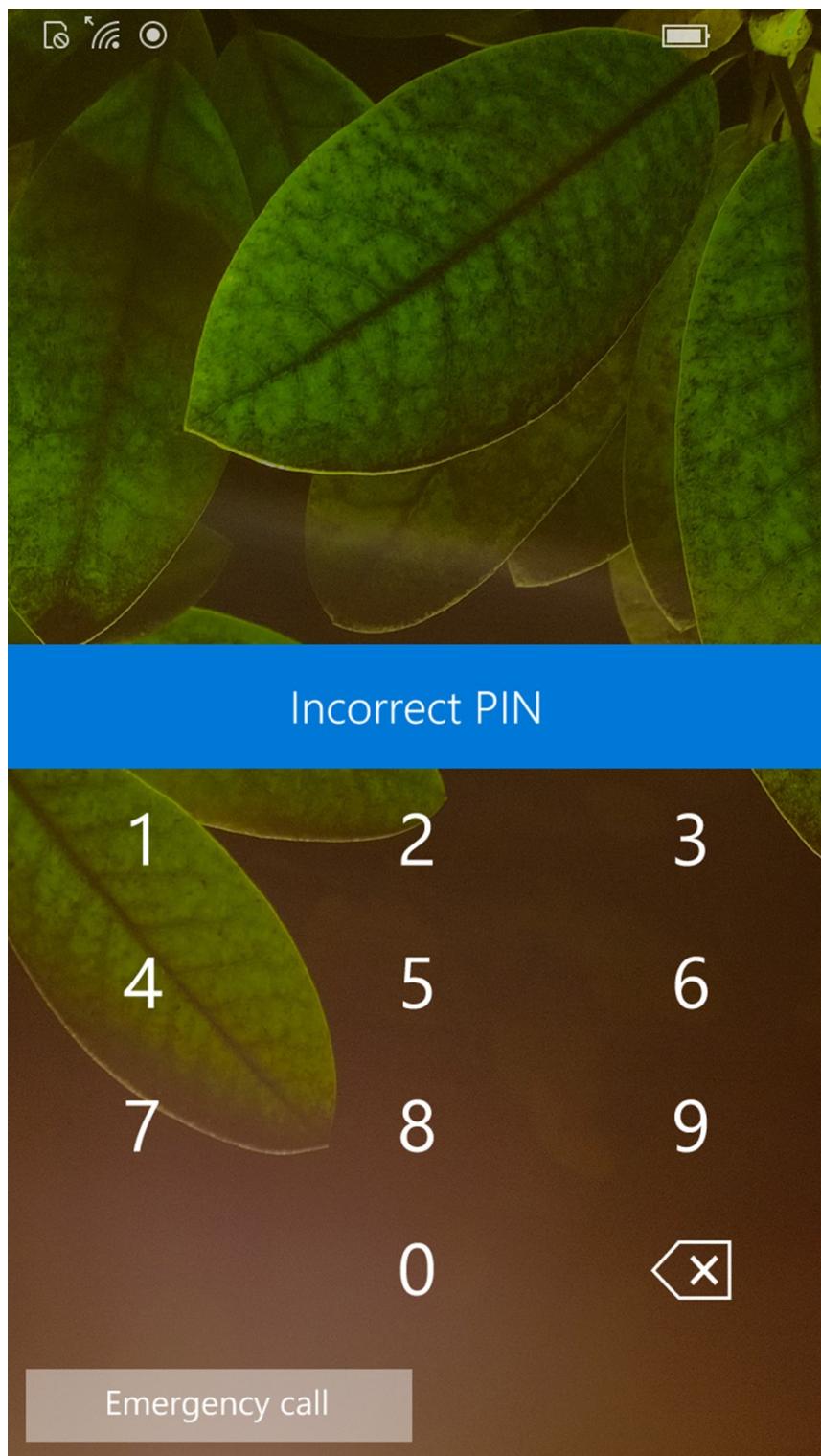
FEEDBACK ANALYSIS: Enter PIN (input numbers)

Aspect	Question	Answer	Score
Concepts			
	What is the concept of the 'feedback'?	White dots appear as number buttons are pressed where the 'Enter PIN' text is	
	How is the concept conveyed visually?	The 'Enter PIN' text disappears and white dots appear over the background image	
	Is it a familiar concept to the user? (check against real examples)	Some form of feedback that hides the entered data is common	
	How well is the concept represented & are there elements missing ?	There is no border or background to the feedback area. The number of digits required is not shown	
	Are there general variations of this concept that could cause confusion ?	Some UI's have the entered number display briefly before turning to a start or dot.	
Line of sight & focus			
	Does the user have to move to get line of sight?	Yes the user has to move there gaze from the key to the feedback area	
	Can the user focus on it? (bi or vari focal glasses)	Can move the arm to bring it into focus	
Conspicuity			
	Is it in the central visual field?	No the user has to move there gaze from the key to the feedback area	
	Is it where the user would expect it to be?	Feedback is typically above PIN pad (iOS, Android, ATM)	
	How many other related elements are there?	Depends on the background	
	Does it stands out against other elements/background?	The contrast is poor with the background	
Clarity			
	What are the key distinguishing features?	Size	Contrast
	- Solid dots	Okay	Poor against background image
Differentiation			
	How different is it from other elements visible at the same time?	No other solid dots	
	How different is it from other elements visible at other times?	Dots are used for covert PIN or password entry	
	Could it be confused with commonly used graphics/symbols that indicate something different?	Dots of this size are not obviously used for other things	

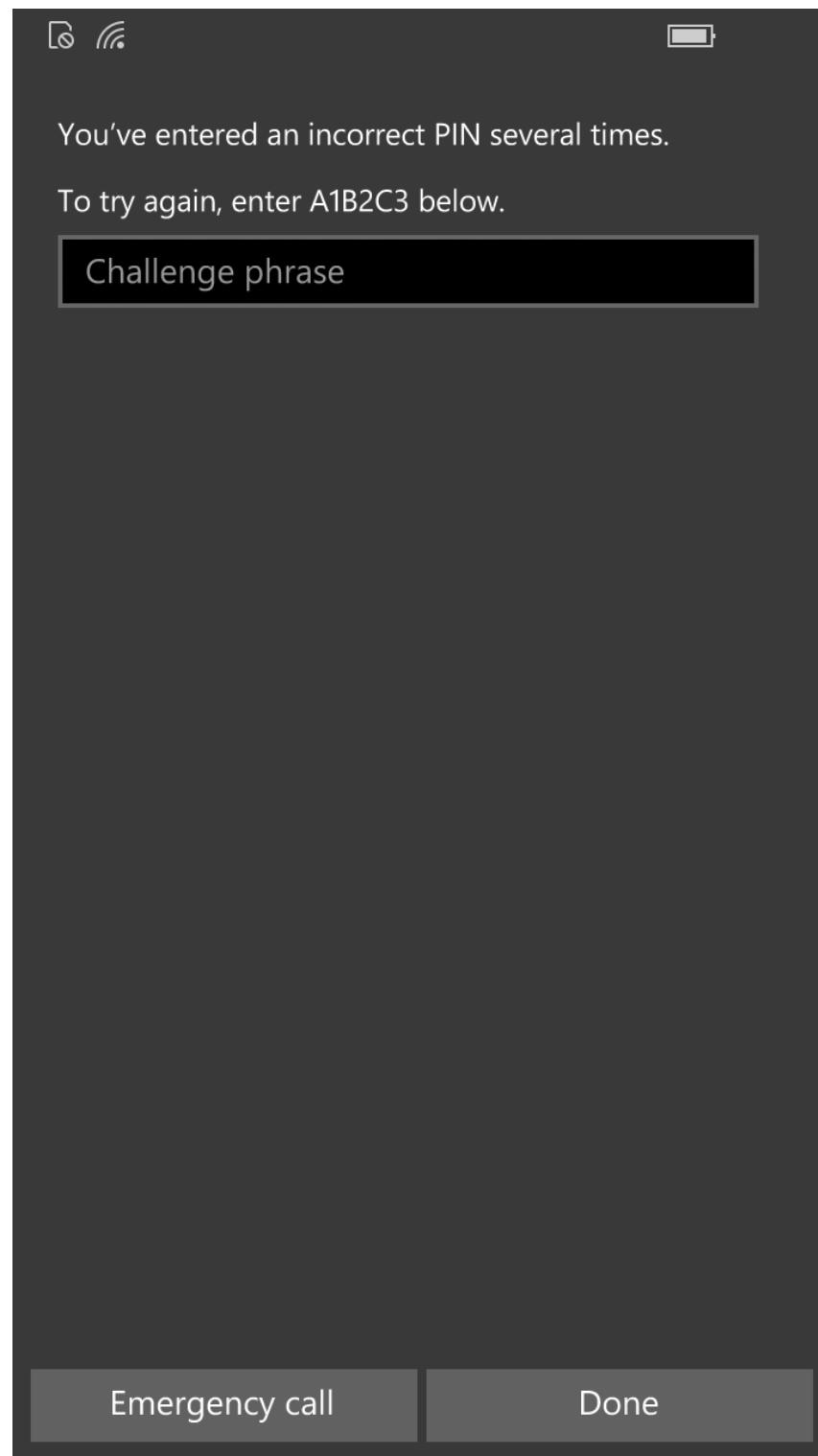
Usability Problem Prediction

Task Step:				
Issue	Visibility problem	Probability	Impact	Rationale
The user fails to perceive the buttons as buttons	Concept	Very low	High	The lack of borders and background could lead to confusion but the familiar layout and spacing makes this unlikely
The user enters the wrong or too many numbers	(Dexterity or cognitive)	Medium	Medium	Not uncommon problem but can correct
The user enters the wrong or too many numbers without knowing it	Conspicuity of feedback	Medium	Medium	Not uncommon problem but can correct
SEE next section on PIN entry issues				

2c. Correcting PIN Entry



If a PIN is entered incorrectly the above screen appears briefly and then returns the the screen as per 2b.



Multiple incorrect entries results in the above screen. There are multiple potential problems including the conceptual understanding of this and the need to press the "Challenge phrase" input field to bring up the keyboard

Usability Problem Prediction

Task Step:				
Issue	Visibility problem	Probability	Impact	Rationale
The user may not read the "Incorrect PIN" message in time and be confused about what has happened	Clarity	Medium	Medium	The display of the message is brief and it returns to the initial state with no indication of what to do
The user may not count the number of incorrect entries and put the phone into challenge mode	Concept	Medium	High	There is no visible counter
The user may not understand the challenge mode and the need to press the input field to enter the challenge phrase	Concept	High (once in this state)	High	It is an unusual function

2d. Enter PIN (check PIN)

Concept **A** U T O

Focus ■ ■ ■ ■

Conspicuity **A** U T O

Clarity **A** U T O

Differentiation **A** U T O

Function

Concept **A** U T O

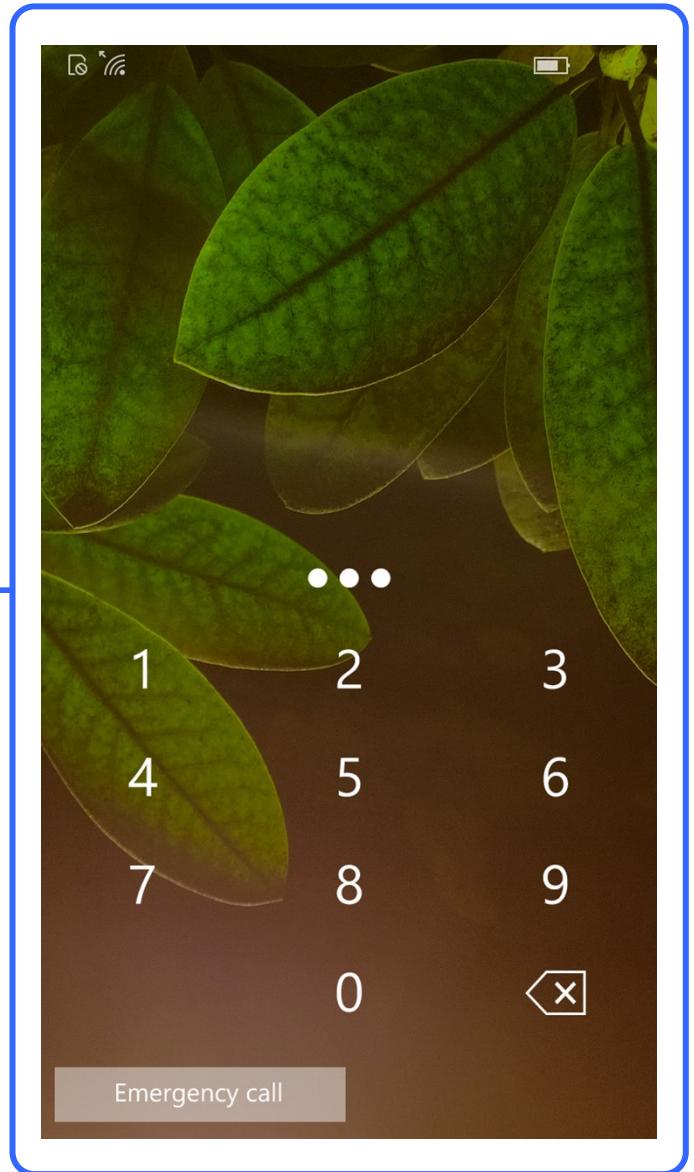
Focus ■ ■ ■ ■

Conspicuity **A** U T O

Clarity **A** U T O

Differentiation **A** U T O

Operation



Feedback

Concept ■ ■ ■ ■

Focus ■ ■ ■ ■

Conspicuity ■ ■ ■ ■

Clarity ■ ■ ■ ■

Differentiation ■ ■ ■ ■

Feedback



FUNCTION ANALYSIS: Enter PIN (check PIN)

Aspect	Question	Answer	Score
Concepts			
	What is the concept of the 'function'?	When the required number of digits is reached the system automatically initiates the checking of the PIN	
	How is the concept conveyed visually?	There is no visual indication that the PIN will be checked automatically.	
	Is it a familiar concept to the user? (check against real examples)	Many PIN or password entry systems require a button to be pressed to confirm. However automated entry in phones is not uncommon.	
	How well is the concept represented & are there elements missing ?	It's automatic with no indication but it flows logically and quickly from having entered the PIN. Technically invisible but automation is appropriate for speed	A
	Are there general variations of this concept that could cause confusion ?	PIN and passwords that require an 'enter' e.g. SIM PIN entry does require a button to be pressed	
Line of sight & focus			
	Does the user have to move to get line of sight?	No	
	Can the user focus on it? (bi or vari focal glasses)	Yes	
Conspicuity			
	Is it in the central visual field?	Yes	
	Is it where the user would expect it to be?	It is automatic	A
	How many other related elements are there?	18	
	Does it stands out against other elements/background?	It is automatic	A
Clarity			
	What are the key distinguishing features?	Size	Contrast
	None		A
Differentiation			
	How different is it from other elements visible at the same time?	Nothing is visible	A
	How different is it from other elements visible at other times?	Nothing is visible	A
	Could it be confused with commonly used graphics/symbols that indicate something different?	Nothing is visible and could be confused with entry where confirmation is required	A

OPERATION ANALYSIS: Enter PIN (check PIN)

Aspect	Question	Answer	Score
Concepts			
	What is the concept of the 'operation'?	When the required number of digits is reached the system automatically initiates the checking on of the PIN	
	How is the concept conveyed visually?	There is no visual indication that the PIN will be checked automatically.	
	Is it a familiar concept to the user? (check against real examples)	Many PIN or password entry systems require a button to be pressed to confirm. However automated entry in phones is not uncommon.	
	How well is the concept represented & are there elements missing ?	It's automatic with no indication but it flows logically and quickly from having entered the SIM. Technically invisible but automation is appropriate for speed	A
	Are there general variations of this concept that could cause confusion ?	PIN and passwords that require an 'enter' e.g. SIM PIN entry	
Line of sight & focus			
	Does the user have to move to get line of sight?	No	
	Can the user focus on it? (bi or vari focal glasses)	Yes	
Conspicuity			
	Is it in the central visual field?	Yes	
	Is it where the user would expect it to be?	It is automatic	A
	How many other related elements are there?	18	
	Does it stands out against other elements/background?	It is automatic	A
Clarity			
	What are the key distinguishing features?	Size	Contrast
	None		A
Differentiation			
	How different is it from other elements visible at the same time?	Nothing is visible	A
	How different is it from other elements visible at other times?	Nothing is visible	A
	Could it be confused with commonly used graphics/symbols that indicate something different?	Nothing is visible and could be confused with entry where confirmation is required	A

FEEDBACK ANALYSIS: Enter PIN (check PIN)

Aspect	Question	Answer	Score
Concepts			
	What is the concept of the 'feedback'?	The PIN entry screen changes to the last screen that was used	
	How is the concept conveyed visually?	Lock screen slides up to reveal last screen	
	Is it a familiar concept to the user? (check against real examples)	A change in screen	
	How well is the concept represented & are there elements missing ?	The animation is rapid and uses a sliding reveal	
	Are there general variations of this concept that could cause confusion ?	Going back to the last used screen is useful but will cause variations and may confuse the user if they expect the home screen. It is a reasonable trade-off of consistency against convenience.	
Line of sight & focus			
	Does the user have to move to get line of sight?	No	
	Can the user focus on it? (bi or vari focal glasses)	Yes	
Conspicuity			
	Is it in the central visual field?	Yes	
	Is it where the user would expect it to be?	Yes	
	How many other related elements are there?	18 (but whole screen change)	
	Does it stand out against other elements/background?	Yes	
Clarity			
	What are the key distinguishing features?	Size	Contrast
	Whole screen change	Large	Good
Differentiation			
	How different is it from other elements visible at the same time?	Whole screen change	
	How different is it from other elements visible at other times?	Whole screen change	
	Could it be confused with commonly used graphics/symbols that indicate something different?	Whole screen change	

3. Start camera

Concept 

Focus 

Conspicuity 

Clarity 

Differentiation 

Function

Concept 

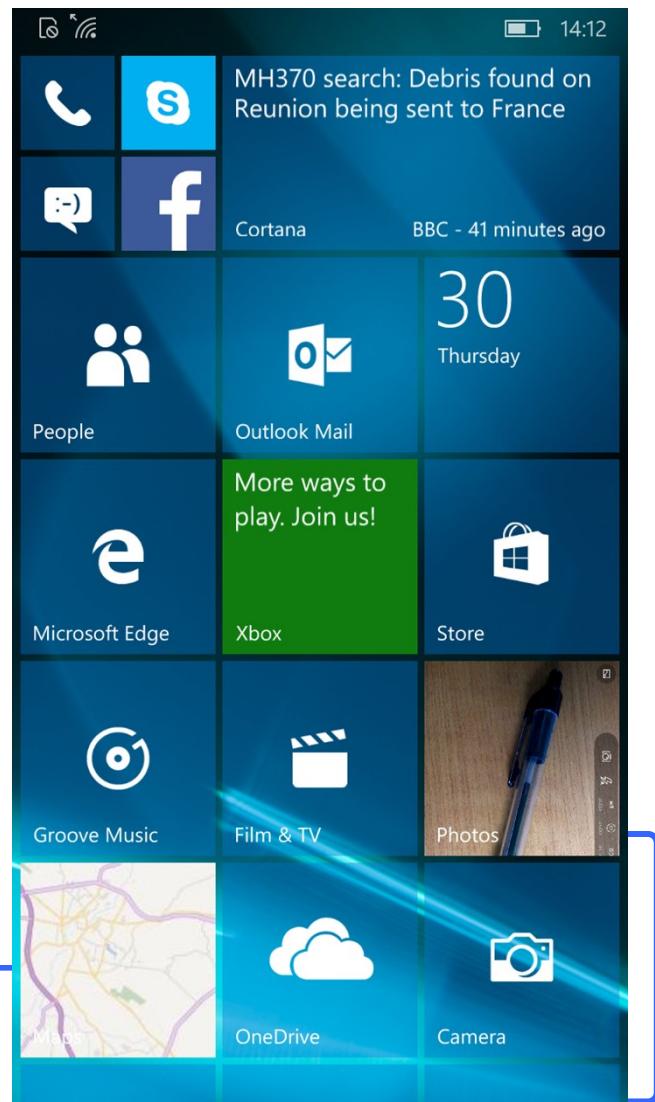
Focus 

Conspicuity 

Clarity 

Differentiation 

Operation



Feedback

Concept 

Focus 

Conspicuity 

Clarity 

Differentiation 

Feedback



FUNCTION ANALYSIS: Start camera

Aspect	Question	Answer	Score
Concepts			
	What is the concept of the 'function'?	Press camera app (OR shortcut via camera on/shutter button)	
	How is the concept conveyed visually?	Tile with camera graphic and text (OR silver button)	
	Is it a familiar concept to the user? (check against real examples)	Users are typically familiar with apps	
	How well is the concept represented & are there elements missing ?	There is a graphic and text	
	Are there general variations of this concept that could cause confusion ?	There is a shortcut via camera on/shutter button	
Line of sight & focus			
	Does the user have to move to get line of sight?	No (unless using shutter button shortcut)	
	Can the user focus on it? (bi or vari focal glasses)	Yes	
Conspicuity			
	Is it in the central visual field?	Lower right of screen (unless using shutter button shortcut)	
	Is it where the user would expect it to be?	Depends on prior experience of devices with cameras	
	How many other related elements are there?	16 other apps	
	Does it stand out against other elements/background?	Most tiles are the same colour	
Clarity			
	What are the key distinguishing features?	Size	Contrast
	Camera icon	Medium	Fair
	Label text "Camera"	Small	Fair
Differentiation			
	How different is it from other elements visible at the same time?	Most tile icons have the same background colour	
	How different is it from other elements visible at other times?	Tile icons off screen often have the same colour	
	Could it be confused with commonly used graphics/symbols that indicate something different?	Camera icon could be used to depict photo library on other devices	

OPERATION ANALYSIS: Start camera

Aspect	Question	Answer	Score
Concepts			
	What is the concept of the 'operation'?	Press application icon	
	How is the concept conveyed visually?	Square tiles in a grid arrangement.	
	Is it a familiar concept to the user? (check against real examples)	Touch devices typically have and array of apps in a grid	
	How well is the concept represented & are there elements missing ?	Not overtly a button	
	Are there general variations of this concept that could cause confusion ?	The buttons are rounded on iOS and both Android and iOS have the text underneath and not as part of the icon	
Line of sight & focus			
	Does the user have to move to get line of sight?	No	
	Can the user focus on it? (bi or vari focal glasses)	Yes	
Conspicuity			
	Is it in the central visual field?	Yes	
	Is it where the user would expect it to be?	Yes	
	How many other related elements are there?	Once the app has been identified the focus is on the tile so none	
	Does it stands out against other elements/background?	Once the app has been identified the focus is on the tile	
Clarity			
	What are the key distinguishing features?	Size	Contrast
	Tile edges	Small gap	fair
Differentiation			
	How different is it from other elements visible at the same time?	The tile edges are close to other surrounding tiles	
	How different is it from other elements visible at other times?	The tile edges are close to other surrounding tiles	
	Could it be confused with commonly used graphics/symbols that indicate something different?	Nothing obvious. Square grid layouts are used for photo browsers but the tiles do not look like photos.	

FEEDBACK ANALYSIS: Start camera

Aspect	Question	Answer		Score
Concepts				
	What is the concept of the 'feedback'?	The camera image (rear facing) is displayed		
	How is the concept conveyed visually?	The camera image takes over the whole screen and changes in real-time		
	Is it a familiar concept to the user? (check against real examples)	Digital cameras have displays		
	How well is the concept represented & are there elements missing ?	Nothing obvious		
	Are there general variations of this concept that could cause confusion ?	Nothing obvious		
Line of sight & focus				
	Does the user have to move to get line of sight?	No		
	Can the user focus on it? (bi or vari focal glasses)	Yes		
Conspicuity				
	Is it in the central visual field?	Yes		
	Is it where the user would expect it to be?	Yes		
	How many other related elements are there?	Takes over whole screen		
	Does it stand out against other elements/background?	Takes over whole screen		
Clarity				
	What are the key distinguishing features?	Size	Contrast	
	Camera image	Whole screen	Camera image	
	Camera controls	Varying size	Depends on image behind	
Differentiation				
	How different is it from other elements visible at the same time?	Takes over whole screen		
	How different is it from other elements visible at other times?	Takes over whole screen		
	Could it be confused with commonly used graphics/symbols that indicate something different?	Not obviously		

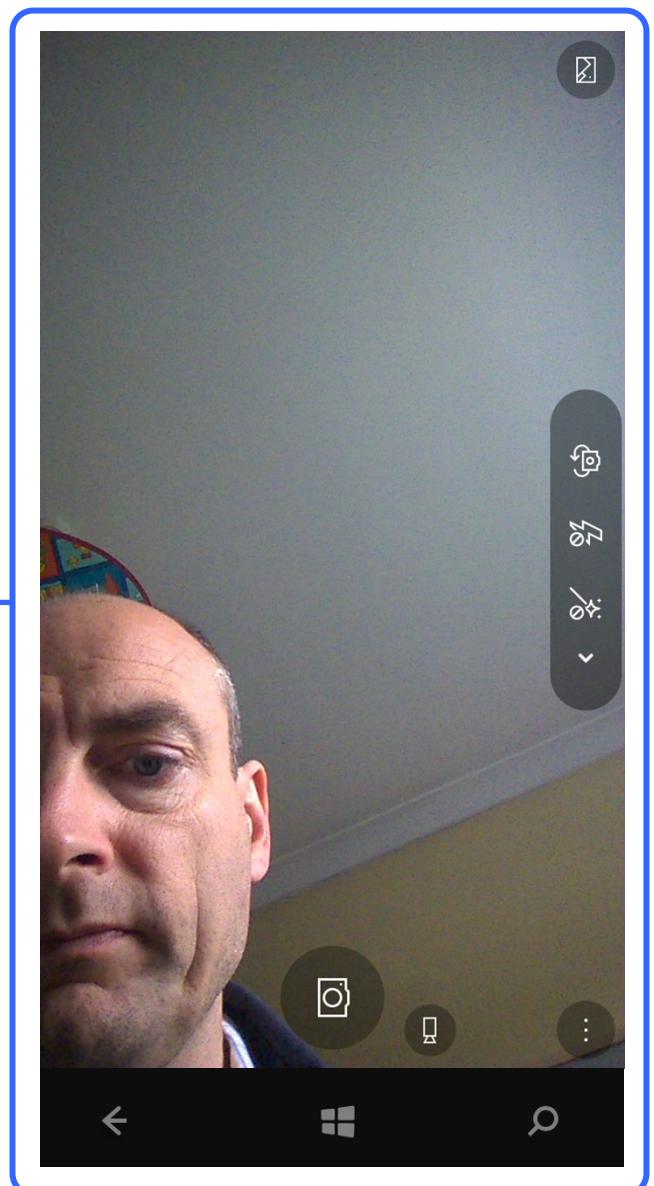
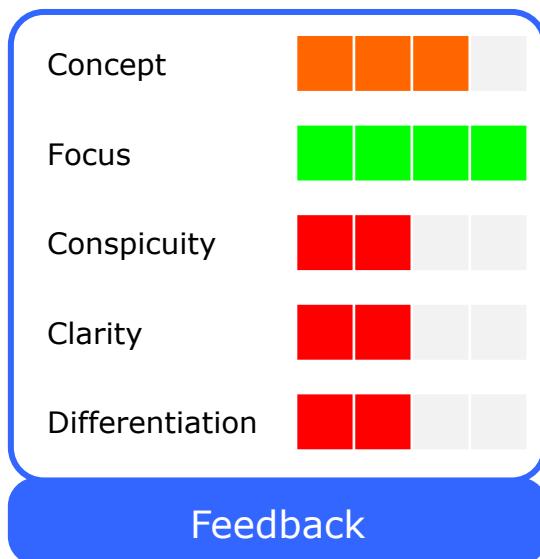
Usability Problem Prediction

Task Step:				
Issue	Visibility problem	Probability	Impact	Rationale
The user may not identify the camera app at all	Conspicuity and Differentiation	Low	High	There any other apps with the same colour background
The user may select another app e.g. photos	Differentiation	Low	High	The number of apps and the differentiation between photos and camera may confuse
The user may attempt to find a dedicated camera button and try the other silver buttons (volume & lock)	Differentiation	Low	Medium	Other phones have this feature and it may lead the user to do it. Trial and error will help them overcome this.

4. Switch to front facing camera



Feedback



FUNCTION ANALYSIS: Switch to front facing camera

Aspect	Question	Answer	Score
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Concepts

	What is the concept of the 'function'?	A button toggles between front (for taking pictures of yourself or videos calls) and rear camera for taking conventional photos	
	How is the concept conveyed visually?	With an icon of a camera with a circular arrow	
	Is it a familiar concept to the user? (check against real examples)	Only if they have used an Android or iOS device	
	How well is the concept represented & are there elements missing ?	Poorly as it is an icon with no text	
	Are there general variations of this concept that could cause confusion ?	Icons vary across different platforms and have changed within platforms	

Line of sight & focus

	Does the user have to move to get line of sight?	No	
	Can the user focus on it? (bi or vari focal glasses)	Yes	

Conspicuity

	Is it in the central visual field?	At the side of the screen	
	Is it where the user would expect it to be?	Depends heavily of prior experience	
	How many other related elements are there?	7 + 3 navigation buttons	
	Does it stands out against other elements/background?	Depends on background as it is a transparent controls and is small. It is in a single oblong object combined with other functions.	

Clarity

	What are the key distinguishing features?	Size	Contrast	
	Camera icon	small	fair	
	Circular arrow	small	fair	

Differentiation

	How different is it from other elements visible at the same time?	It is similar to the camera shutter release. Other icons are also quite abstract	
	How different is it from other elements visible at other times?	The combination of camera + circular arrow is possibly reasonably distinct	
	Could it be confused with commonly used graphics/symbols that indicate something different?	Other camera functions	

OPERATION ANALYSIS: Switch to front facing camera

Aspect	Question	Answer	Score
Concepts			
	What is the concept of the 'operation'?	Button to toggle cameras	
	How is the concept conveyed visually?	It is an icon on shared oblong background	
	Is it a familiar concept to the user? (check against real examples)	Multiple buttons on a single background with no dividing lines is less common	
	How well is the concept represented & are there elements missing ?	No button boundaries between buttons	
	Are there general variations of this concept that could cause confusion ?	Individual buttons or clearer button boundaries	
Line of sight & focus			
	Does the user have to move to get line of sight?	No	
	Can the user focus on it? (bi or vari focal glasses)	Yes	
Conspicuity			
	Is it in the central visual field?	Yes	
	Is it where the user would expect it to be?	A real question over this with an object that could look like a single button	
	How many other related elements are there?	3 + 3 Navigation Buttons	
	Does it stands out against other elements/background?	Not in relation to the other buttons as there are no dividers	
Clarity			
	What are the key distinguishing features?	Size	Contrast
	Transparent (shared) background	Small	Variable
Differentiation			
	How different is it from other elements visible at the same time?	Icons are distinctive (but abstract) but the lack of button boundaries is a problme	
	How different is it from other elements visible at other times?	It is like a single button	
	Could it be confused with commonly used graphics/symbols that indicate something different?	It is like a single button	

FEEDBACK ANALYSIS: Switch to front facing camera

Aspect	Question	Answer	Score
Concepts			
	What is the concept of the 'feedback'?	The camera image displayed switches	
	How is the concept conveyed visually?	A rapid change in the image displayed and the name of the camera 'front camera' and 'main camera' is displayed	
	Is it a familiar concept to the user? (check against real examples)	Only if they have used similar devices	
	How well is the concept represented & are there elements missing ?	Whole screen changes. Labelling of camera 'front' and 'main' may may not be sufficiently explicit	
	Are there general variations of this concept that could cause confusion ?	Not obviously	
Line of sight & focus			
	Does the user have to move to get line of sight?	No	
	Can the user focus on it? (bi or vari focal glasses)	Yes	
Conspicuity			
	Is it in the central visual field?	Yes	
	Is it where the user would expect it to be?	Yes	
	How many other related elements are there?	Takes over whole screen	
	Does it stands out against other elements/background?	Takes over whole screen	
Clarity			
	What are the key distinguishing features?	Size	Contrast
	Change in image	Whole screen	Depends on 2 images
	Transient text of camera type	Large	Fair and transient
Differentiation			
	How different is it from other elements visible at the same time?	Takes over whole screen	
	How different is it from other elements visible at other times?	User potentially could get confused about which camera is in operation with regards to the image on screen	
	Could it be confused with commonly used graphics/symbols that indicate something different?	Not obviously	

Usability Problem Prediction

Task Step:				
Issue	Visibility problem	Probability	Impact	Rationale
User fails to identify switch camera button	All	Medium	High	It is abstract and part of a single background combine with other buttons
User tries other buttons first	All	High	Low	It is abstract and part of a single background combine with other buttons
User gets confused about which camera is in operation and moves phone around to try and determine which it is	Conspicuity	Low	Low	The user may struggle to work out what the camera is pointing at. But should be able to diagnose which camera is in operation.
The user may be confused about the fact the phone has a front facing camera	Concept, conspicuity, clarity	Low	High	The users will be told that it has two cameras but may still become confused

5. Compose Picture

Concept

Focus

Conspicuity

Clarity

Differentiation

Function

Concept

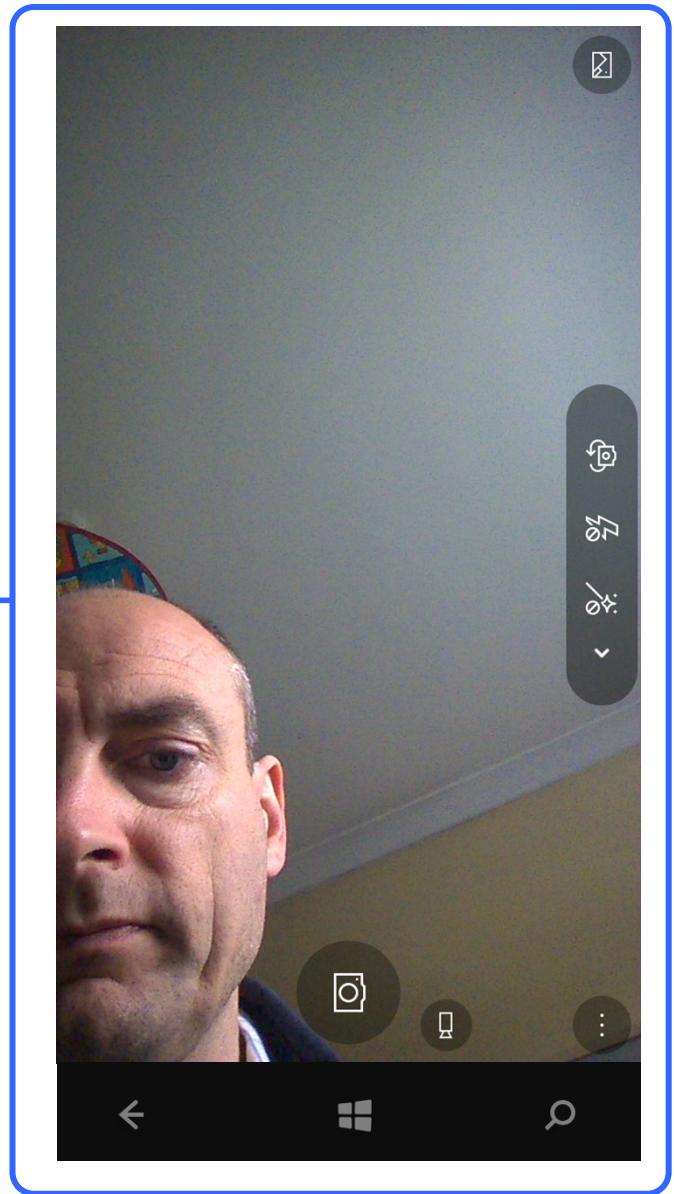
Focus

Conspicuity

Clarity

Differentiation

Operation



Feedback

Concept

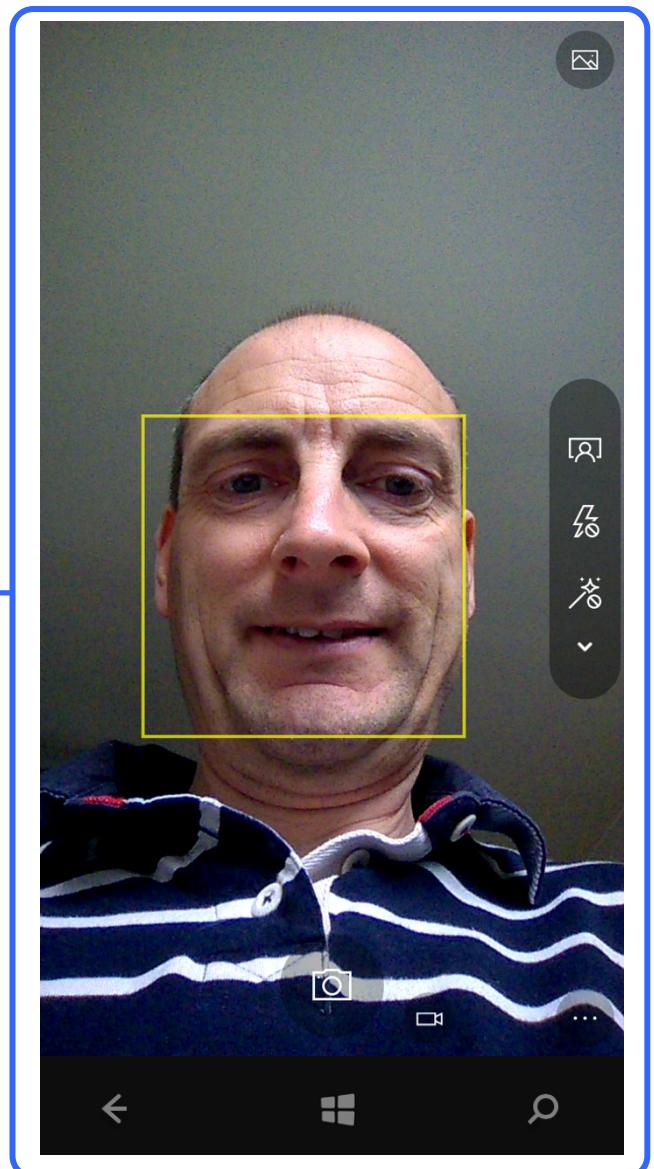
Focus

Conspicuity

Clarity

Differentiation

Feedback



FUNCTION ANALYSIS: Compose Picture

Aspect	Question	Answer	Score
Concepts			
	What is the concept of the 'function'?	A front facing camera for taking pictures of yourself	
	How is the concept conveyed visually?	The camera lens is flush with the fascia glass and is not made prominent in any way. Feedback of the image is in real-time	
	Is it a familiar concept to the user? (check against real examples)	A camera normally has a single prominent lens and the phone differs to this and therefore requires experience of camera phones. However this is in part overcome by the real-time feedback of the camera image	
	How well is the concept represented & are there elements missing ?	The camera lens is 'blended' into the fascia. However the feedback from the camera is real-time	
	Are there general variations of this concept that could cause confusion ?	Historically phones have not all had front facing cameras	
Line of sight & focus			
	Does the user have to move to get line of sight?	The camera image takes up the whole screen	
	Can the user focus on it? (bi or vari focal glasses)		
Conspicuity			
	Is it in the central visual field?	Yes	
	Is it where the user would expect it to be?	Yes	
	How many other related elements are there?	Image covers whole screen overlaid with 8 controls + 3 navigation buttons	
	Does it stand out against other elements/background?	Image covers whole screen overlaid with 8 controls + 3 navigation buttons	
Clarity			
	What are the key distinguishing features?	Size	Contrast
	Real-time camera image	Large	Depends on image
Differentiation			
	How different is it from other elements visible at the same time?	Real-time feedback of the camera image	
	How different is it from other elements visible at other times?	Could be confused with rear facing camera	
	Could it be confused with commonly used graphics/symbols that indicate something different?	It is a real-time camera image	

OPERATION ANALYSIS: Compose Picture

Aspect	Question	Answer	Score
Concepts			
	What is the concept of the 'operation'?	If you move the phone (camera) the image displayed will change	
	How is the concept conveyed visually?	Rapid change of image (real-time)	
	Is it a familiar concept to the user? (check against real examples)	Many digital cameras work in this way	
	How well is the concept represented & are there elements missing ?	The speed of change is good but there is no explicit permanent indication of which camera is being used	
	Are there general variations of this concept that could cause confusion ?	The camera points the opposite way to conventional photography and the target image is not in line of sight. This makes composing harder particularly where the target is off screen	
Line of sight & focus			
	Does the user have to move to get line of sight?	No	
	Can the user focus on it? (bi or vari focal glasses)	Yes	
Conspicuity			
	Is it in the central visual field?	Yes	
	Is it where the user would expect it to be?	Yes	
	How many other related elements are there?	Image covers whole screen overlaid with 8 controls + 3 navigation buttons	
	Does it stand out against other elements/background?	Image covers whole screen overlaid with 8 controls + 3 navigation buttons	
Clarity			
	What are the key distinguishing features?	Size	Contrast
	Rapid update of camera image	Large	Depends on image
Differentiation			
	How different is it from other elements visible at the same time?	Real-time feedback of the camera image	
	How different is it from other elements visible at other times?	Could be confused with rear facing camera	
	Could it be confused with commonly used graphics/symbols that indicate something different?	It is a real-time camera image	

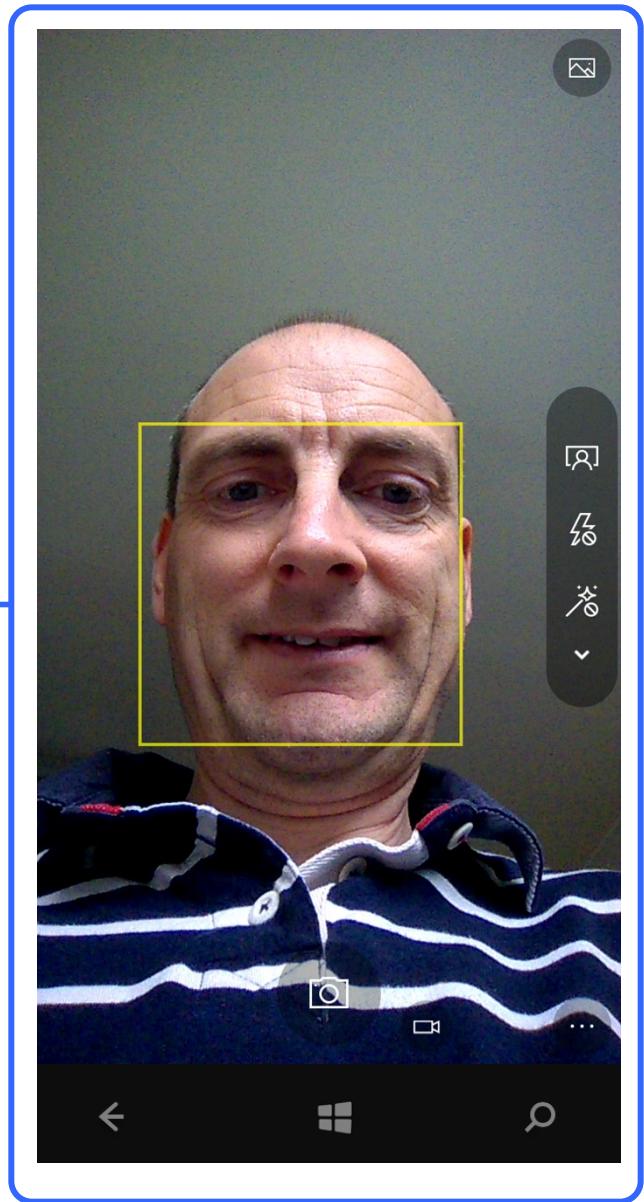
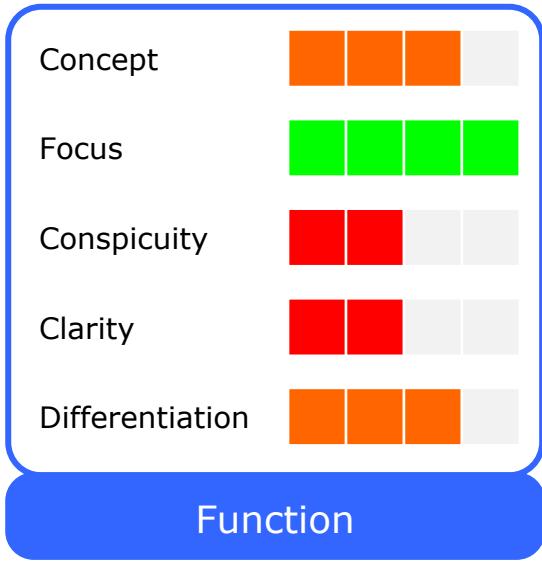
FEEDBACK ANALYSIS: Compose Picture

Aspect	Question	Answer	Score
Concepts			
	What is the concept of the 'feedback'?	When the target is in the field of view of the camera it will be displayed	
	How is the concept conveyed visually?	Rapid feedback of image and face recognition with outline box	
	Is it a familiar concept to the user? (check against real examples)	Many digital cameras have real-time image display	
	How well is the concept represented & are there elements missing ?	Nothing obvious once target is in view	
	Are there general variations of this concept that could cause confusion ?	Nothing obvious once target is in view	
Line of sight & focus			
	Does the user have to move to get line of sight?	No	
	Can the user focus on it? (bi or vari focal glasses)	Yes	
Conspicuity			
	Is it in the central visual field?	Yes	
	Is it where the user would expect it to be?	Yes	
	How many other related elements are there?	Image covers whole screen overlaid with 8 controls + 3 navigation buttons	
	Does it stands out against other elements/background?	Image covers whole screen overlaid with 8 controls + 3 navigation buttons	
Clarity			
	What are the key distinguishing features?	Size	Contrast
	Image covering whole screen	Large	Depends on image
Differentiation			
	How different is it from other elements visible at the same time?	Real-time feedback of the camera image	
	How different is it from other elements visible at other times?	Real-time feedback of the camera image	
	Could it be confused with commonly used graphics/symbols that indicate something different?	Rear facing camera	

Usability Problem Prediction

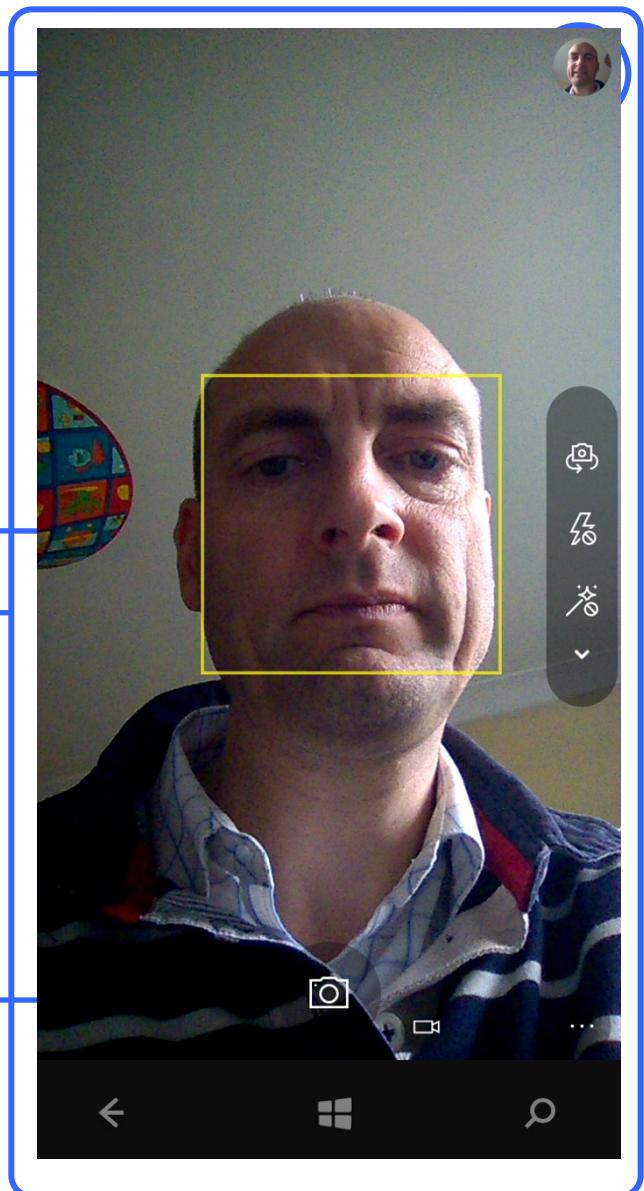
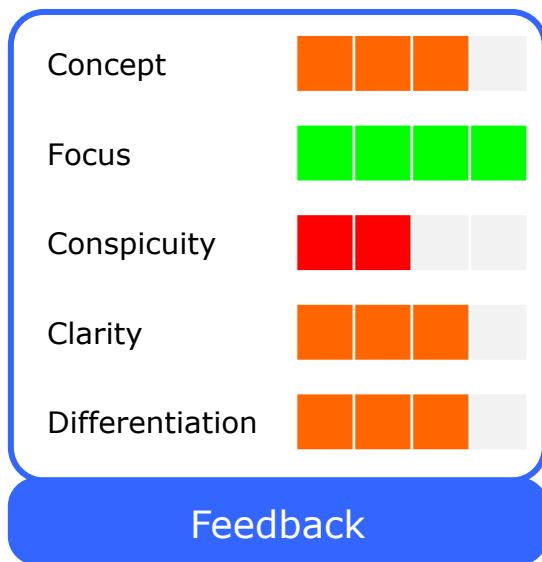
Task Step:				
Issue	Visibility problem	Probability	Impact	Rationale
The user may remain confused over which camera they have selected	Concept	Medium	High	There is no permanent indication of which camera is selected
The target image(s) may be out of the field of view and the user may have a problem aligning the camera as the target is not in their field of view as it is with conventional photography	Concept	High	Low	The use may take time to get the target(s) in the field of view of the camera. Conventional alignment where the picture take can see the target directly is not possible. Trial an error should help overcome this
The user may block the camera not knowing where it is	Conspicuity, clarity	Medium	Low	The camera is small, flush and low contrast compared to its surround

6. Take Picture



Feedback

N.B. Transient changes not shown as they can't be captured by the screen shot function but they described in the feedback analysis slide



FUNCTION ANALYSIS: Take Picture

Aspect	Question	Answer	Score	
Concepts				
	What is the concept of the 'function'?	A single button press captures the displayed image. This can be done with the onscreen button or a dedicated side key shutter button		
	How is the concept conveyed visually?	A semi-transparent circular button overlaid on the image. With an alternative via a silver shutter button		
	Is it a familiar concept to the user? (check against real examples)	Dedicated cameras typically have a dedicated shutter button		
	How well is the concept represented & are there elements missing ?	The contrast is poor and the button has no text to indicate what it is		
	Are there general variations of this concept that could cause confusion ?	Still and video 'take' buttons could be confused. The dedicated shutter button also activates the camera app (functional overloading)		
Line of sight & focus				
	Does the user have to move to get line of sight?	No		
	Can the user focus on it? (bi or vari focal glasses)	Yes		
Conspicuity				
	Is it in the central visual field?	The button is towards the edge of the screen		
	Is it where the user would expect it to be?	Depends heaviliy on prior knowledge		
	How many other related elements are there?	7 + 3 navigation bar buttons		
	Does it stands out against other elements/background?	It is semi-transparent and depends on the background		
Clarity				
	What are the key distinguishing features?	Size	Contrast	
	Circular button background	Medium	Variable	
	Camera icon	Small-medium	Variable	
Differentiation				
	How different is it from other elements visible at the same time?	It is larger that other buttons but could be confused with video icon		
	How different is it from other elements visible at other times?	Could potentially confused with different camera functions e.g. settings		
	Could it be confused with commonly used graphics/symbols that indicate something different?	Not obviously		

OPERATION ANALYSIS: Take Picture

Aspect	Question	Answer	Score
Concepts			
	What is the concept of the 'operation'?	Single press button	
	How is the concept conveyed visually?	Circular background	
	Is it a familiar concept to the user? (check against real examples)	Buttons can have distinct broader and be rectangular in shape	
	How well is the concept represented & are there elements missing ?	It could be more overtly a button	
	Are there general variations of this concept that could cause confusion ?	Circles are used sometime used for status indicators	
Line of sight & focus			
	Does the user have to move to get line of sight?	No	
	Can the user focus on it? (bi or vari focal glasses)	Yes	
Conspicuity			
	Is it in the central visual field?	Yes if identified as the shutter button function	
	Is it where the user would expect it to be?	Yes if identified as the shutter button function	
	How many other related elements are there?	Superimposed on camera image	
	Does it stands out against other elements/background?	Depends of on camera image	
Clarity			
	What are the key distinguishing features?	Size	Contrast
	Circular button background	Medium	Variable
Differentiation			
	How different is it from other elements visible at the same time?	Depends on camera image	
	How different is it from other elements visible at other times?	Camera icon made be used for other functions	
	Could it be confused with commonly used graphics/symbols that indicate something different?	Not if identified as a shutter button	

FEEDBACK ANALYSIS: Take Picture

Aspect	Question	Answer	Score
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Concepts

	What is the concept of the 'feedback'?	Transient changes before the life image is displayed again	
	How is the concept conveyed visually?	The face detection box (if present) temporarily disappears. The shutter button has a temporary coloured background. The whole image dims and the photo library button temporarily grows a small amount and the icon changes to the image taken. (There is a shutter sound.)	
	Is it a familiar concept to the user? (check against real examples)	Potentially from digital cameras	
	How well is the concept represented & are there elements missing ?	There are a number of transient changes but they are brief	
	Are there general variations of this concept that could cause confusion ?	Transitions can be longer or a complete black out	

Line of sight & focus

	Does the user have to move to get line of sight?	No	
	Can the user focus on it? (bi or vari focal glasses)	Yes	

Conspicuity

	Is it in the central visual field?	Spread across screen	
	Is it where the user would expect it to be?	Depends on prior experience	
	How many other related elements are there?	7 elements don't change	
	Does it stand out against other elements/background?	It is very brief	

Clarity

	What are the key distinguishing features?	Size	Contrast	
	Shutter button	Medium	variable	
	Camera image	Large	variable	
	Photo library button	Small	variable	

Differentiation

	How different is it from other elements visible at the same time?	Relies on animation	
	How different is it from other elements visible at other times?	Relies on animation	
	Could it be confused with commonly used graphics/symbols that indicate something different?	Relies on animation	

Usability Problem Prediction

Task Step:				
Issue	Visibility problem	Probability	Impact	Rationale
The user may fail to find the shutter button and give up	Conspicuity, clarity	Low	High	The variability of contrast of the shutter may result in it not being identified
The user may press another button thinking it is the shutter button	Differentiation	Low	medium	The user may incorrectly identify another button such as the video button. However it is smaller.
The user may fail to realise the picture has been taken	Conspicuity	Low	High	The brief duration of animations indicating that a picture has been taken may be missed. This is offset by the presence of a shutter sound

7. View picture

Function

Concept	■ ■ ■ ■
Focus	■ ■ ■ ■
Conspicuity	■ ■ ■ ■
Clarity	■ ■ ■ ■
Differentiation	■ ■ ■ ■

Operation

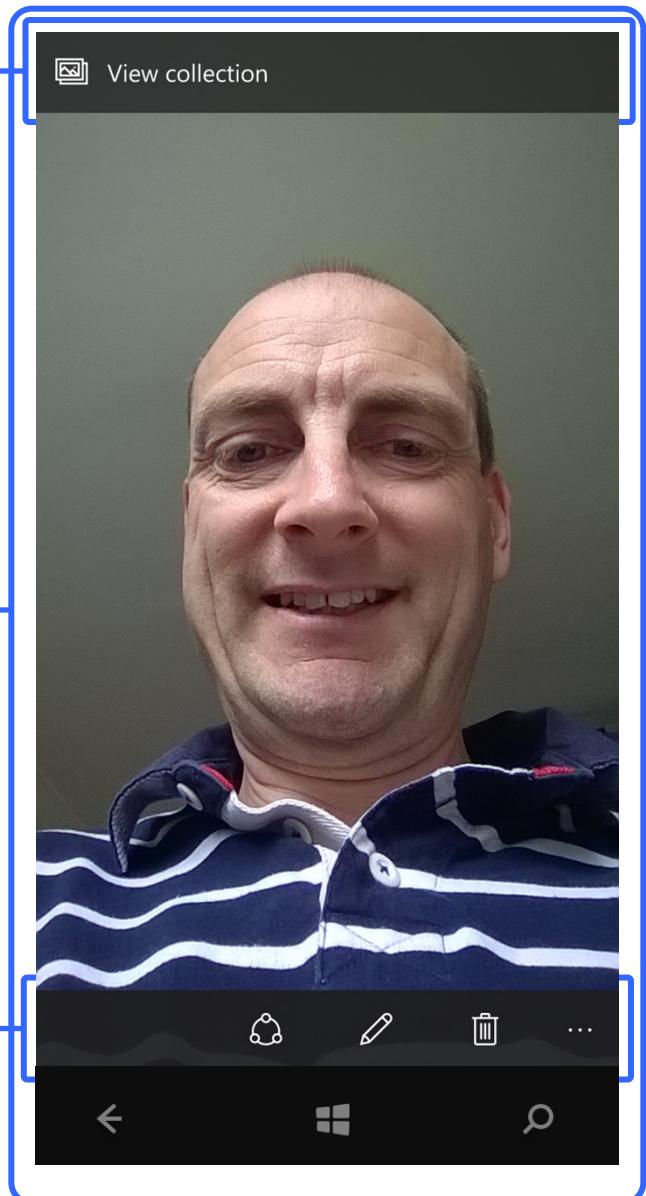
Concept	■ ■ ■ ■
Focus	■ ■ ■ ■
Conspicuity	■ ■ ■ ■
Clarity	■ ■ ■ ■
Differentiation	■ ■ ■ ■



Feedback

Feedback

Concept	■ ■ ■ ■
Focus	■ ■ ■ ■
Conspicuity	■ ■ ■ ■
Clarity	■ ■ ■ ■
Differentiation	■ ■ ■ ■



FUNCTION ANALYSIS: View picture

Aspect	Question	Answer	Score
Concepts			
	What is the concept of the 'function'?	A button that displays the last taken image	
	How is the concept conveyed visually?	The button is round and takes a circular 'cut-out' of the central part of the last taken image	
	Is it a familiar concept to the user? (check against real examples)	Buttons are not normally dynamic	
	How well is the concept represented & are there elements missing ?	No label or button border	
	Are there general variations of this concept that could cause confusion ?	Most buttons remain the same	
Line of sight & focus			
	Does the user have to move to get line of sight?	No	
	Can the user focus on it? (bi or vari focal glasses)	Yes	
Conspicuity			
	Is it in the central visual field?	No it is top right	
	Is it where the user would expect it to be?	Highly dependent on prior knowledge	
	How many other related elements are there?	7 + 3 navigation buttons	
	Does it stand out against other elements/background?	Depends on taken image and current image	
Clarity			
	What are the key distinguishing features?	Size	Contrast
	Circular cut-out of taken image	small	variable
Differentiation			
	How different is it from other elements visible at the same time?	Depends on taken image and current image	
	How different is it from other elements visible at other times?	Could be confused with circular profile shots used in contact details	
	Could it be confused with commonly used graphics/symbols that indicate something different?	Could be confused with circular profile shots used in contact details	

OPERATION ANALYSIS: View picture

Aspect	Question	Answer	Score
Concepts			
	What is the concept of the 'operation'?	It is a single press button	
	How is the concept conveyed visually?	By a circular cut-out of the last image taken	
	Is it a familiar concept to the user? (check against real examples)	Buttons using an image are not widely used	
	How well is the concept represented & are there elements missing ?	There are not overt button graphical features	
	Are there general variations of this concept that could cause confusion ?	Buttons typically have a solid background and border	
Line of sight & focus			
	Does the user have to move to get line of sight?	No	
	Can the user focus on it? (bi or vari focal glasses)	Yes	
Conspicuity			
	Is it in the central visual field?	Yes if function identified	
	Is it where the user would expect it to be?	Yes if function identified	
	How many other related elements are there?	Surrounding live image from camera	
	Does it stands out against other elements/background?	Depends on taken and background camera image	
Clarity			
	What are the key distinguishing features?	Size	Contrast
	The button is round and takes a circular 'cut-out' of the central part of the last taken image	Small	variable
Differentiation			
	How different is it from other elements visible at the same time?	Depends on taken and background camera image	
	How different is it from other elements visible at other times?	Depends on taken and background camera image	
	Could it be confused with commonly used graphics/symbols that indicate something different?	Could be confused with circular profile shots used in contact details	

FEEDBACK ANALYSIS: View picture

Aspect	Question	Answer	Score	
Concepts				
	What is the concept of the 'feedback'?	The taken image is displayed with head and footer button bars		
	How is the concept conveyed visually?	The header bar is not transparent and contains a view collection button. The footer bar is transparent and contains a 'share', 'edit', 'delete' and other options buttons. These disappear after a few seconds.		
	Is it a familiar concept to the user? (check against real examples)	The image becoming static indicates that the device is in some kind of display mode. However there is nothing explicit to say what the app is		
	How well is the concept represented & are there elements missing ?	The overall presence of buttons differentiates it from the camera combined with the image being static. However there is nothing explicit to indicate it is the photo library		
	Are there general variations of this concept that could cause confusion ?	The header contains a button and no title which could confuse		
Line of sight & focus				
	Does the user have to move to get line of sight?	No		
	Can the user focus on it? (bi or vari focal glasses)	Yes		
Conspicuity				
	Is it in the central visual field?	Yes for static image but header and foot not central		
	Is it where the user would expect it to be?	Yes		
	How many other related elements are there?	Elements help indicate that it is the photo library		
	Does it stands out against other elements/background?	The header and footers do but it is transient (a subsequent press of the image brings them back permanently)		
Clarity				
	What are the key distinguishing features?	Size	Contrast	
	Header	Medium	Good	
	Footer	Medium	Good	
	Static image	Large	Good	
Differentiation				
	How different is it from other elements visible at the same time?	Good as it is differentiated from capture image		
	How different is it from other elements visible at other times?	Could be confused with other apps		
	Could it be confused with commonly used graphics/symbols that indicate something different?	Button icons are relatively abstract and do not necessarily indicate it is the photo library		

Usability Problem Prediction

Task Step:				
Issue	Visibility problem	Probability	Impact	Rationale
The user fails to identify the photo app button and gives up	All	Medium	High	The button is a large distance from the shutter button meaning the animation of the button (contains new image) may be missed. The button has no label
The user tries other buttons and becomes confused	All	Medium	High	As above
The user presses the start (home) key to get to the photos app (valid but inefficient route)	All	Medium	High	As above

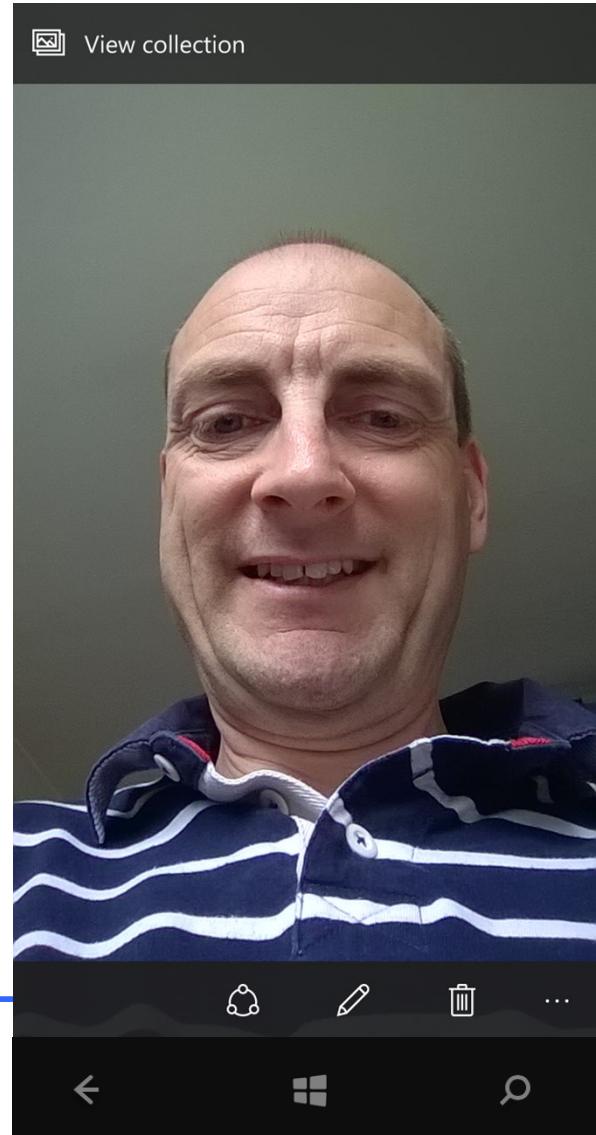
8a. Create and email with picture – display share options

Function

Concept	■ ■ ■ ■
Focus	■ ■ ■ ■
Conspicuity	■ ■ ■ ■
Clarity	■ ■ ■ ■
Differentiation	■ ■ ■ ■

Operation

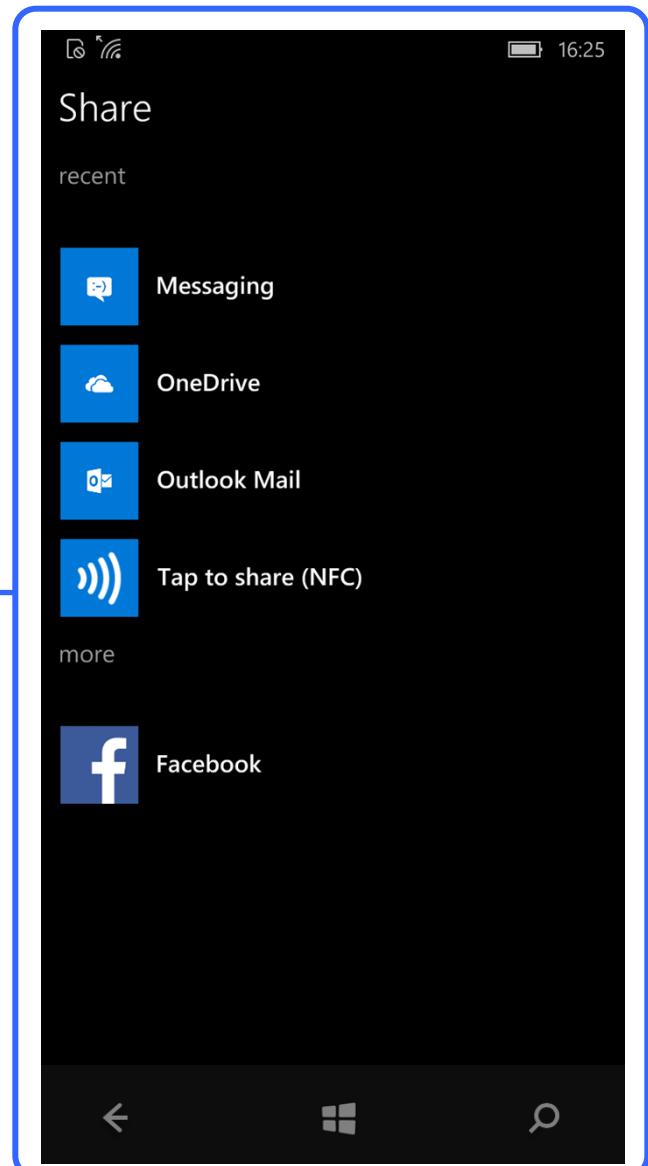
Concept	■ ■ ■ ■
Focus	■ ■ ■ ■
Conspicuity	■ ■ ■ ■
Clarity	■ ■ ■ ■
Differentiation	■ ■ ■ ■



Feedback

Feedback

Concept	■ ■ ■ ■
Focus	■ ■ ■ ■
Conspicuity	■ ■ ■ ■
Clarity	■ ■ ■ ■
Differentiation	■ ■ ■ ■



FUNCTION ANALYSIS: Create and email with picture – display share options

Aspect	Question	Answer	Score
Concepts			
	What is the concept of the 'function'?	Pressing a button brings up a list of sharing options	
	How is the concept conveyed visually?	A circle with 3 small circles embedded in the larger circle	
	Is it a familiar concept to the user? (check against real examples)	The user may not expect a list of options. The icon seems to be unique to Windows and different from iOS and Android although the later has 3 smaller circles but no larger circle	
	How well is the concept represented & are there elements missing ?	There is no text label	
	Are there general variations of this concept that could cause confusion ?	The icon is abstract and could cause confusion	
Line of sight & focus			
	Does the user have to move to get line of sight?	No	
	Can the user focus on it? (bi or vari focal glasses)	Yes	
Conspicuity			
	Is it in the central visual field?	It is at the bottom	
	Is it where the user would expect it to be?	Depends on touch device use	
	How many other related elements are there?	5 plus 3 navigation buttons	
	Does it stands out against other elements/background?	Relatively small and moderate contrast	
Clarity			
	What are the key distinguishing features?	Size	Contrast
	Icon	Medium to small	Moderate
Differentiation			
	How different is it from other elements visible at the same time?	There are other icon only buttons which are abstract e.g. could the pen/pencil mean email message?	
	How different is it from other elements visible at other times?	Could be confused with status indicators as there is no button boundary	
	Could it be confused with commonly used graphics/symbols that indicate something different?	Could be confused with status indicators as there is no button boundary	

OPERATION ANALYSIS: Create and email with picture – display share options

Aspect	Question	Answer	Score
Concepts			
	What is the concept of the 'operation'?	Single press button	
	How is the concept conveyed visually?	Icon on a bar	
	Is it a familiar concept to the user? (check against real examples)	No overt button features e.g. border	
	How well is the concept represented & are there elements missing ?	No border and demarcation from adjacent button	
	Are there general variations of this concept that could cause confusion ?	Buttons can be more explicit potentially leading to confusion if this is a button	
Line of sight & focus			
	Does the user have to move to get line of sight?	No	
	Can the user focus on it? (bi or vari focal glasses)	Yes	
Conspicuity			
	Is it in the central visual field?	Yes when identified	
	Is it where the user would expect it to be?	Yes when identified	
	How many other related elements are there?	Next to edit button	
	Does it stand out against other elements/background?	Semi-transparent background	
Clarity			
	What are the key distinguishing features?	Size	Contrast
	Icon	Medium to small	Variable
Differentiation			
	How different is it from other elements visible at the same time?	There is no visible button boundary	
	How different is it from other elements visible at other times?	Button styles vary	
	Could it be confused with commonly used graphics/symbols that indicate something different?	Could be confused with status indicators as there is no button boundary (although this is a function issue)	

FEEDBACK ANALYSIS: Create and email with picture – display share options

Aspect	Question	Answer	Score
Concepts			
	What is the concept of the 'feedback'?	The screen displays a list of options	
	How is the concept conveyed visually?	Icon and text list of options split into recent and others	
	Is it a familiar concept to the user? (check against real examples)	Icon and text lists are not uncommon	
	How well is the concept represented & are there elements missing ?	The background is black and represents a large visual change	
	Are there general variations of this concept that could cause confusion ?	Pop-up menus (as opposed to whole screen) but unlikely to cause confusion	
Line of sight & focus			
	Does the user have to move to get line of sight?	No	
	Can the user focus on it? (bi or vari focal glasses)	Yes	
Conspicuity			
	Is it in the central visual field?	Yes	
	Is it where the user would expect it to be?	Yes	
	How many other related elements are there?	Whole screen changes	
	Does it stand out against other elements/background?	Yes	
Clarity			
	What are the key distinguishing features?	Size	Contrast
	Black background	Whole screen	Good
	Icon & text list items	Medium	Good
Differentiation			
	How different is it from other elements visible at the same time?	Whole screen changes	
	How different is it from other elements visible at other times?	List are not always split into 'recent' and 'more' but not an issue for general feedback for sharing	
	Could it be confused with commonly used graphics/symbols that indicate something different?	Unlikely	

Usability Problem Prediction

Task Step:				
Issue	Visibility problem	Probability	Impact	Rationale
The user may not try anything because nothing is explicitly 'share'	Concept	Low	High	All the buttons are icon only
User may not expect a list and the icon does not indicate that it is a menu and may become confused and explore other options e.g. back or home button	Concept	Low	High	The user may think that there is only one way to share e.g. email and not expect a list of options
The user may not correctly understand that it is the photo library app	Concept	Low	High	There is no explicit indication of what the app is. It relies on a static image and the presence of buttons with abstract icons
The user may be confused by the disappearing header and footer. Leading to exploring incorrect options such as using the start (home) key	Concept	Medium	High	The disappearing header and footer could easily confuse the user with no visible buttons to aid recovery
The user may press the "View Collection" button thinking it contains the recently taken image	Concept	Low	High	The "view collection" could draw the user into believing that it is where the photos are.

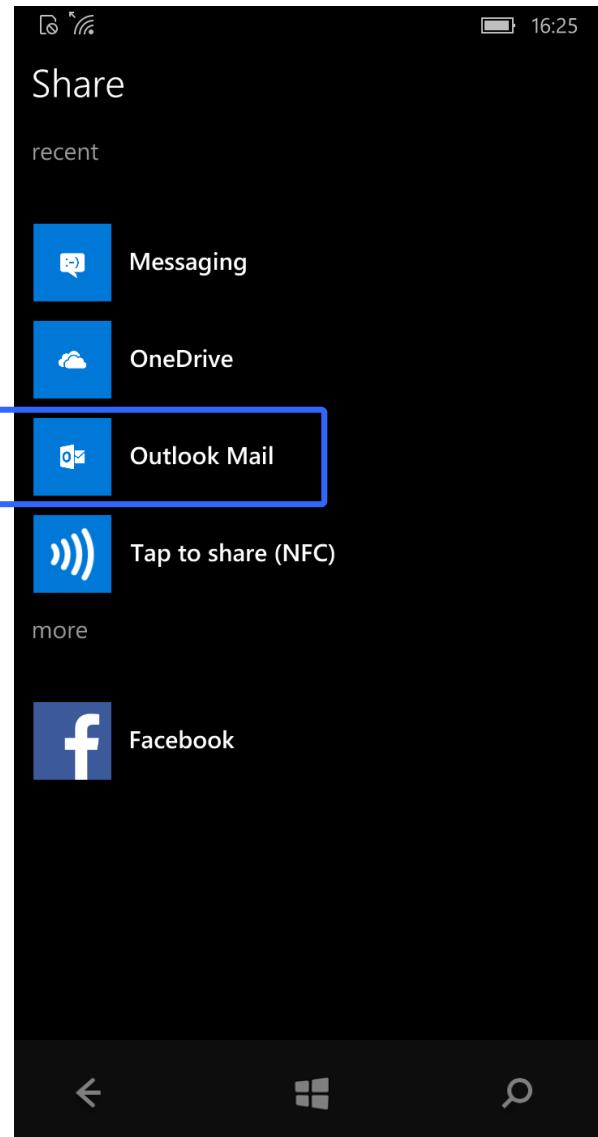
8b. Create and email with picture – create prepopulated email

Function

Concept	
Focus	
Conspicuity	
Clarity	
Differentiation	

Operation

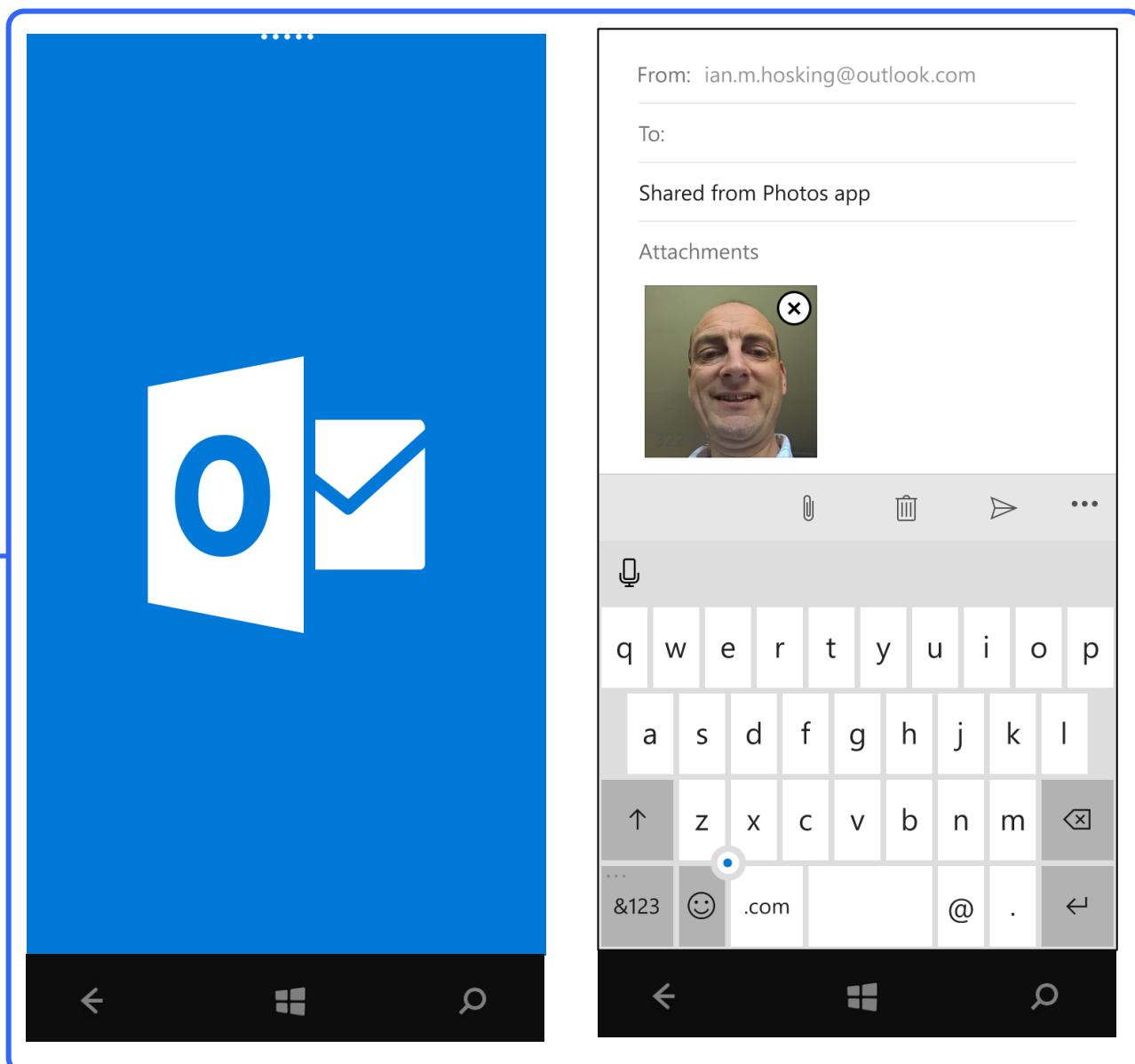
Concept	
Focus	
Conspicuity	
Clarity	
Differentiation	



Feedback

Feedback

Concept	
Focus	
Conspicuity	
Clarity	
Differentiation	



FUNCTION ANALYSIS: Create and email with picture – create prepopulated email

Aspect	Question	Answer	Score
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Concepts

	What is the concept of the 'function'?	Selecting the menu item launches the Outlook app (but only for sending one email with the attached image i.e. it exits app on completion of send)	
	How is the concept conveyed visually?	A menu list of icons + text	
	Is it a familiar concept to the user? (check against real examples)	The use of menu list is familiar but the conceptual difference between 'messaging' and 'mail' is less clear	
	How well is the concept represented & are there elements missing ?	Yes apart from split into 'recent' and 'more' where the more label is nearer the recent items	
	Are there general variations of this concept that could cause confusion ?	Simple lists i.e. no split	

Line of sight & focus

	Does the user have to move to get line of sight?	No	
	Can the user focus on it? (bi or vari focal glasses)	Yes	

Conspicuity

	Is it in the central visual field?	Yes	
	Is it where the user would expect it to be?	Yes	
	How many other related elements are there?	4 other menu items. 4 status indicators in header area and 3 navigation buttons	
	Does it stand out against other elements/background?	Yes	

Clarity

	What are the key distinguishing features?	Size	Contrast	
	Icon	Small	Good	
	Text	Small	Good	
	List section label	Small	Good	

Differentiation

	How different is it from other elements visible at the same time?	Text and icon helps differentiation	
	How different is it from other elements visible at other times?	Text makes explicit what it is	
	Could it be confused with commonly used graphics/symbols that indicate something different?	Not obviously	

OPERATION ANALYSIS: Create and email with picture – create prepopulated email

Aspect	Question	Answer	Score
Concepts			
	What is the concept of the 'operation'?	Single press menu item	
	How is the concept conveyed visually?	Icon and text	
	Is it a familiar concept to the user? (check against real examples)	Yes	
	How well is the concept represented & are there elements missing ?	There are no menu item dividers	
	Are there general variations of this concept that could cause confusion ?	Menus with clear dividers and borders	
Line of sight & focus			
	Does the user have to move to get line of sight?	No	
	Can the user focus on it? (bi or vari focal glasses)	Yes	
Conspicuity			
	Is it in the central visual field?	Yes	
	Is it where the user would expect it to be?	Yes	
	How many other related elements are there?	Adjacent menu items	
	Does it stands out against other elements/background?	Yes	
Clarity			
	What are the key distinguishing features?	Size	Contrast
	Icon and text	Medium	Good
Differentiation			
	How different is it from other elements visible at the same time?	Spacing provides differentiation from other items	
	How different is it from other elements visible at other times?	Not an issue	
	Could it be confused with commonly used graphics/symbols that indicate something different?	Text makes it explicit	

FEEDBACK ANALYSIS: Create and email with picture – create prepopulated email

Aspect	Question	Answer	Score
Concepts			
	What is the concept of the 'feedback'?	Transient app splash screen and then email	
	How is the concept conveyed visually?	Initially with the Outlook splash screen and then displays an email with image attached	
	Is it a familiar concept to the user? (check against real examples)	The email layout is familiar (although the email body is below the image) but the splash screen may cause confusion	
	How well is the concept represented & are there elements missing ?	Nothing obvious	
	Are there general variations of this concept that could cause confusion ?	The position of the attached image in the email body	
Line of sight & focus			
	Does the user have to move to get line of sight?	No	
	Can the user focus on it? (bi or vari focal glasses)	Yes	
Conspicuity			
	Is it in the central visual field?	Yes	
	Is it where the user would expect it to be?	Yes	
	How many other related elements are there?	Whole screen change	
	Does it stands out against other elements/background?	Whole screen change	
Clarity			
	What are the key distinguishing features?	Size	Contrast
	Whole screen change	Large	Good
Differentiation			
	How different is it from other elements visible at the same time?	Whole screen change	
	How different is it from other elements visible at other times?	Whole screen change leading to email	
	Could it be confused with commonly used graphics/symbols that indicate something different?	No obviously	

Usability Problem Prediction

Task Step:				
Issue	Visibility problem	Probability	Impact	Rationale
The user may not understand that the screen is a menu	Concept	Very Low	High	The lack of menu dividers may cause the user to misunderstand that it is a menu
The user may become confused between messaging and email	Concept, Differentiation	Medium	High	The difference between the two options is not clear
The splash screen may cause confusion leading to the user thinking they have done something wrong leading to them taking an incorrect action e.g. selecting start (home)	Concept	Very low	Low	The splash screen may be unexpected and cause the user to question whether they have done the right thing

9. Enter email address

Concept

Focus

Conspicuity

Clarity

Differentiation

Function

Concept

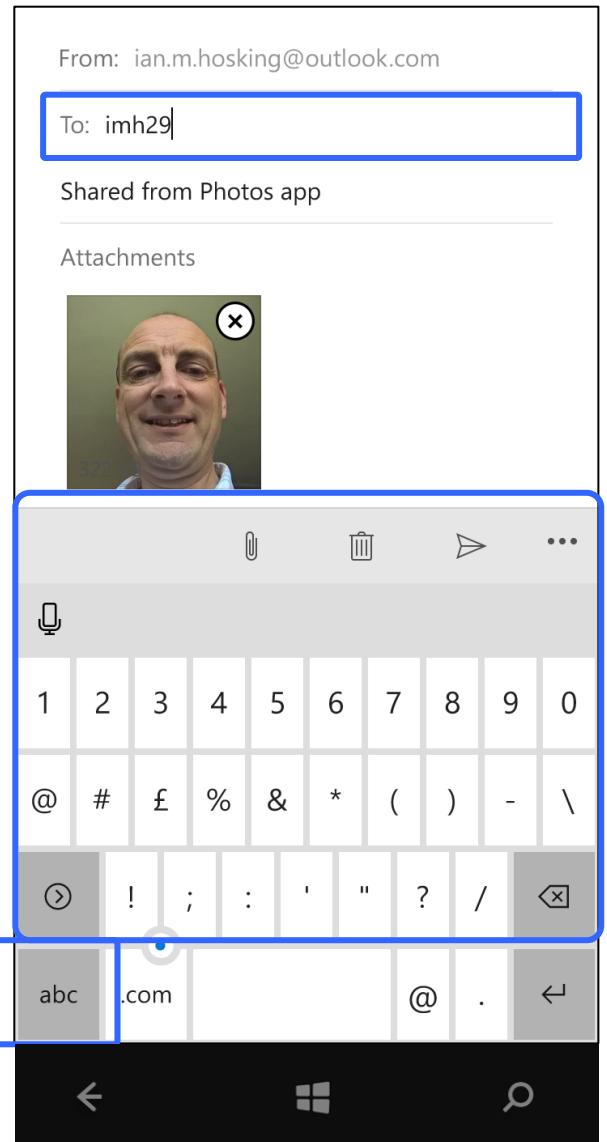
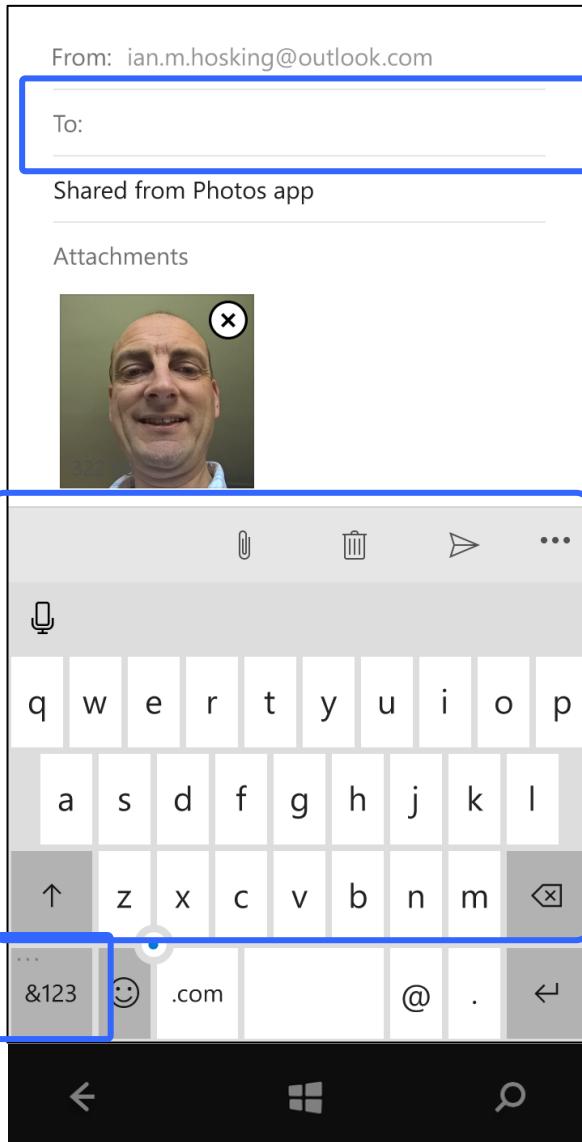
Focus

Conspicuity

Clarity

Differentiation

Operation



Feedback

Concept

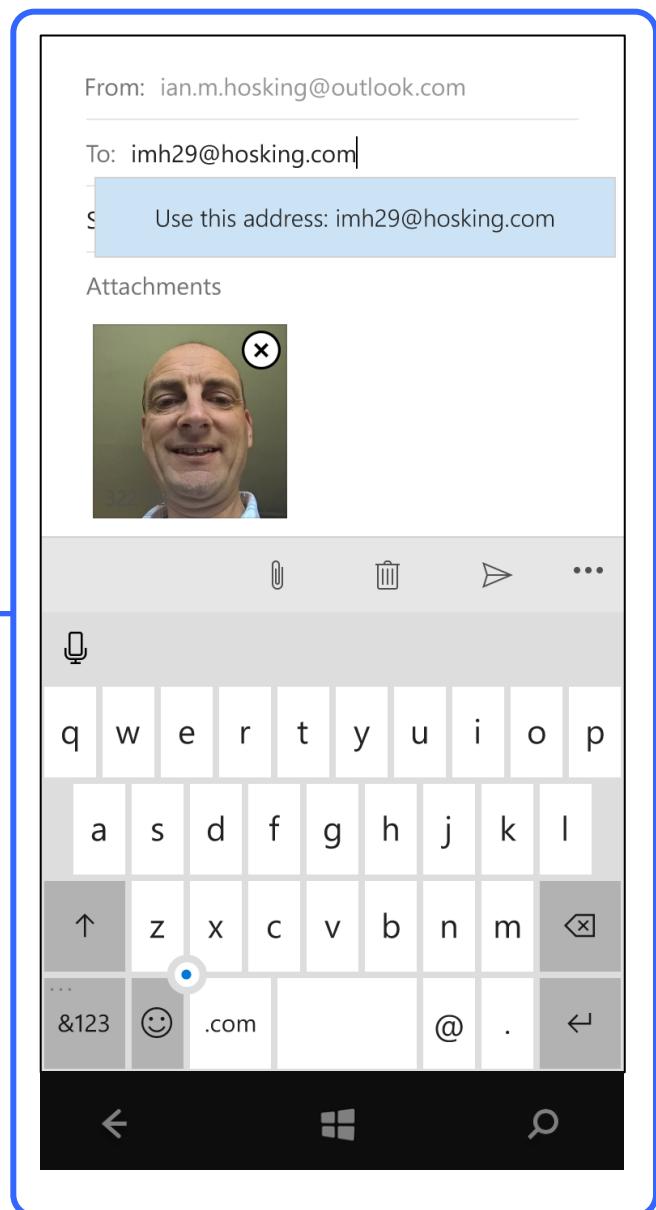
Focus

Conspicuity

Clarity

Differentiation

Feedback



FUNCTION ANALYSIS: Enter email address

Aspect	Question	Answer	Score
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Concepts

	What is the concept of the 'function'?	An input field with on-screen keyboard	
	How is the concept conveyed visually?	Input field with label "To:" and flashing cursor	
	Is it a familiar concept to the user? (check against real examples)	Yes	
	How well is the concept represented & are there elements missing ?	There is no surrounding box for the input field or highlighting of the active field	
	Are there general variations of this concept that could cause confusion ?	As per above. Text editing cursor has a different symbol from that used in the message body.	

Line of sight & focus

	Does the user have to move to get line of sight?	No	
	Can the user focus on it? (bi or vari focal glasses)	Yes	

Conspicuity

	Is it in the central visual field?	Yes	
	Is it where the user would expect it to be?	Yes	
	How many other related elements are there?	Keyboard, from field, title field, attachments area, button area, navigation keys	
	Does it stand out against other elements/background?	No highlighting	

Clarity

	What are the key distinguishing features?	Size	Contrast	
	"To:" label	small	poor	
	Top and bottom divider lines	Large but thin	poor	
	Keyboard	Small keys but large overall	okay	
	Flashing cursor	Thin line	okay	

Differentiation

	How different is it from other elements visible at the same time?	Differentiated by label and divider lines	
	How different is it from other elements visible at other times?	Different styles of input fields	
	Could it be confused with commonly used graphics/symbols that indicate something different?	Could be seen as status as per from field which is only active when there is more than one account (check?)	

OPERATION ANALYSIS: Enter email address

Aspect	Question	Answer	Score
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Concepts

	What is the concept of the 'operation'?	Input using keyboard with integral cursor control	
	How is the concept conveyed visually?	On-screen keyboard with switchable panels one alpha, two numeric and one Emoji plus cursor navigation via integral dot that produced 4 arrows when touched	
	Is it a familiar concept to the user? (check against real examples)	Yes for mobile touch devices but cursor navigation is novel	
	How well is the concept represented & are there elements missing ?	Keyboard has 4 different panels that require switching to access	
	Are there general variations of this concept that could cause confusion ?	Physical keyboards only have one panel	

Line of sight & focus

	Does the user have to move to get line of sight?	No	
	Can the user focus on it? (bi or vari focal glasses)	Yes	

Conspicuity

	Is it in the central visual field?	Split between input field and keyboard	
	Is it where the user would expect it to be?	Yes	
	How many other related elements are there?	from field, title field, attachments area, button area, navigation keys	
	Does it stands out against other elements/background?	Text input is real-time	

Clarity

	What are the key distinguishing features?	Size	Contrast	
	Keyboard	Small keys	Okay	
	Input field text	Small	Good	

Differentiation

	How different is it from other elements visible at the same time?	Text appears as typed and black as opposed to grey	
	How different is it from other elements visible at other times?	Labeled input field in clear context	
	Could it be confused with commonly used graphics/symbols that indicate something different?	Not obviously	

FEEDBACK ANALYSIS: Enter email address

Aspect	Question	Answer	Score
Concepts			
	What is the concept of the 'feedback'?	Text displayed as typed and confirm email address pop-up	
	How is the concept conveyed visually?	Black text appears in input field followed by "use this address: xxxxxx" pop-up	
	Is it a familiar concept to the user? (check against real examples)	Input display of text is common but completion pop-up less	
	How well is the concept represented & are there elements missing ?	There is a underlying lack of highlighting of the active field	
	Are there general variations of this concept that could cause confusion ?	As per above	
Line of sight & focus			
	Does the user have to move to get line of sight?	No	
	Can the user focus on it? (bi or vari focal glasses)	Yes	
Conspicuity			
	Is it in the central visual field?	Has to move between input field and keyboard	
	Is it where the user would expect it to be?	Yes	
	How many other related elements are there?	from field, title field, attachments area, button area, navigation keys	
	Does it stands out against other elements/background?	Small size of text and lack of field highlighting	
Clarity			
	What are the key distinguishing features?	Size	Contrast
	text	small	good
	Pop-up	Medium	good
Differentiation			
	How different is it from other elements visible at the same time?	Text differentiated by the font colour being black and a field label being grey. No input field highlighting	
	How different is it from other elements visible at other times?	It is text and difference is by context and label	
	Could it be confused with commonly used graphics/symbols that indicate something different?	Has field label	

Usability Problem Prediction

Task Step:				
Issue	Visibility problem	Probability	Impact	Rationale
Input field not identified leading to pressing other part of message	Conspicuity, clarity	Low	High	No field highlighting and small poor contrast label
Unable to find numeric input panel	Concept	Low	High	Multi-panel keyboard may confuse novice users
My struggle to understand 2 available forms of cursor navigation required to edit	Concept	Low	High	Abstract representation via dots requires prior knowledge or willingness to explore
Auto completion pop-up may cause confusion leading to incorrect actions e.g. "Use this address:" comes up before the address is complete	Concept	High	High	It is confusing that "use this address: ..." appears before the address is fully entered
Mistyping	(target area)	High	Low	Not a visibility issue but a problem that is likely to occur

10. Enter email title

Concept

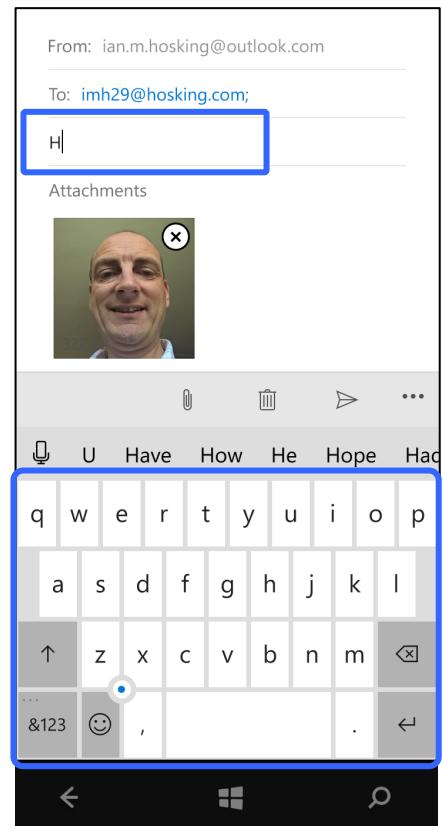
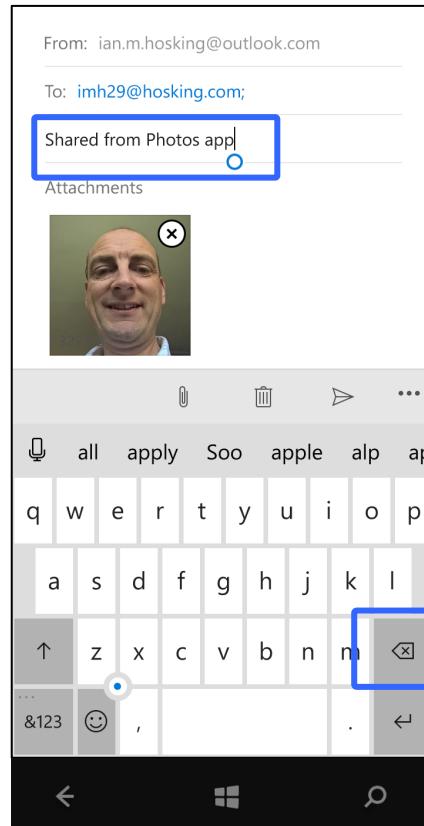
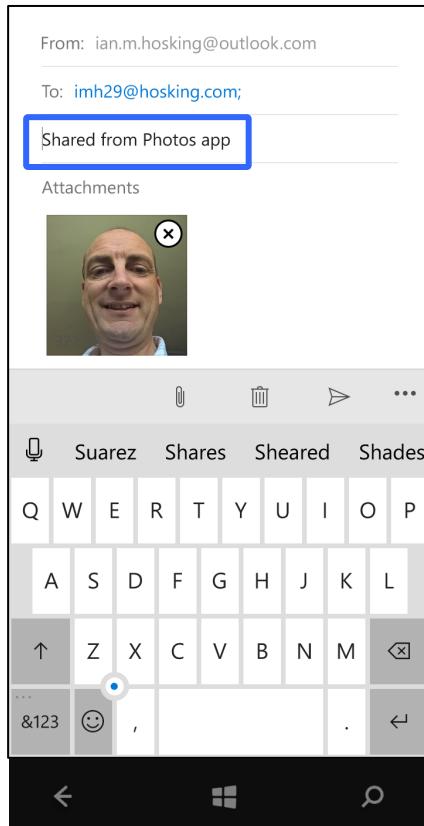
Focus

Conspicuity

Clarity

Differentiation

Function



Concept

Focus

Conspicuity

Clarity

Differentiation

Operation

Feedback

Concept

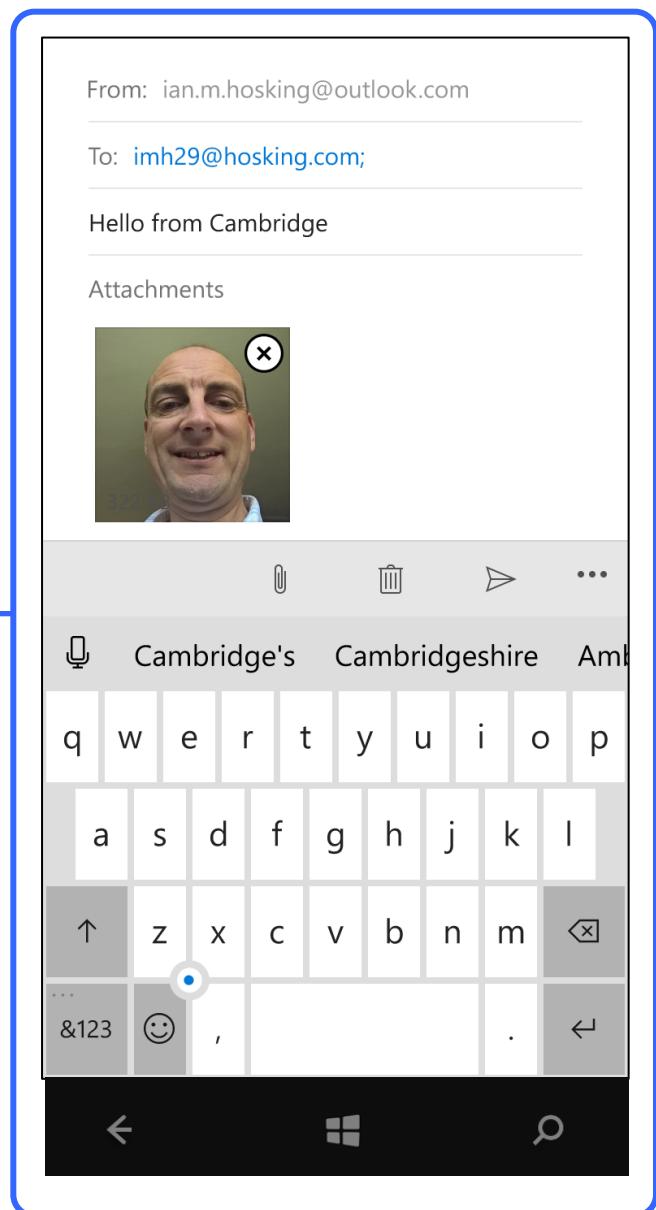
Focus

Conspicuity

Clarity

Differentiation

Feedback



FUNCTION ANALYSIS:

Aspect	Question	Answer	Score	
Concepts				
	What is the concept of the 'function'?	The title field is pro-populated with the title "Shared from Photos app". The cursor is at the beginning		
	How is the concept conveyed visually?	Cursor flashes at the beginning of the text		
	Is it a familiar concept to the user? (check against real examples)	Prepopulated fields are not unusual		
	How well is the concept represented & are there elements missing ?	There is no surrounding box for input field or highlighting of the active field. There is no label text (blank email has placeholder text of "Subject")		
	Are there general variations of this concept that could cause confusion ?	Some input fields have placeholder text that automatically disappears when a field is selected or you start typing. Indeed creating a new email in the Outlook client has this. The only difference being that the text is a light grey. Text editing cursor has a different symbol from that used in the title.		
Line of sight & focus				
	Does the user have to move to get line of sight?	No		
	Can the user focus on it? (bi or vari focal glasses)	Yes		
Conspicuity				
	Is it in the central visual field?	Yes		
	Is it where the user would expect it to be?	Yes		
	How many other related elements are there?	Keyboard, from field, to field, attachments area, button area, navigation keys		
	Does it stands out against other elements/background?	No highlighting. No label		
Clarity				
	What are the key distinguishing features?	Size	Contrast	
	Top and bottom divider lines	Large but thin	poor	
	Keyboard	Small keys but large overall	okay	
	Flashing cursor	Thin line	okay	
Differentiation				
	How different is it from other elements visible at the same time?	Differentiated by label and divider lines		
	How different is it from other elements visible at other times?	Different styles of input fields		
	Could it be confused with commonly used graphics/symbols that indicate something different?	Could be seen as status as per from field which is only active when there is more than one account (check?)		

OPERATION ANALYSIS:

Aspect	Question	Answer	Score	
Concepts				
	What is the concept of the 'operation'?	Input using keyboard with integral cursor control. Cursor placed at the beginning of the line.		
	How is the concept conveyed visually?	On-screen keyboard with switchable panels one alpha, two numeric and one Emoji plus cursor navigation via integral dot that produced 4 arrows when touched		
	Is it a familiar concept to the user? (check against real examples)	For mobile touch devices but cursor navigation is novel		
	How well is the concept represented & are there elements missing ?	Keyboard has 4 different panels that require switching to access		
	Are there general variations of this concept that could cause confusion ?	Physical keyboards only one panel		
Line of sight & focus				
	Does the user have to move to get line of sight?	No		
	Can the user focus on it? (bi or vari focal glasses)	Yes		
Conspicuity				
	Is it in the central visual field?	Split between input field and keyboard		
	Is it where the user would expect it to be?	Yes		
	How many other related elements are there?	from field, to field, attachments area, button area, navigation keys		
	Does it stands out against other elements/background?	Text input is real-time		
Clarity				
	What are the key distinguishing features?	Size	Contrast	
	Keyboard	Small keys	Okay	
	Input field text	Small	Good	
Differentiation				
	How different is it from other elements visible at the same time?	Text appears as typed and black as opposed to grey		
	How different is it from other elements visible at other times?	Labeled input field in clear context		
	Could it be confused with commonly used graphics/symbols that indicate something different?	Not obviously		

FEEDBACK ANALYSIS:

Aspect	Question	Answer		Score
Concepts				
	What is the concept of the 'feedback'?	Text displayed as typed and confirm email address pop-up		
	How is the concept conveyed visually?	Black text appears in input field followed by "use this address: xxxxxx" pop-up		
	Is it a familiar concept to the user? (check against real examples)	Input display of text is common but completion pop-up less		
	How well is the concept represented & are there elements missing ?	There is a underlying lack of highlighting of the active field		
	Are there general variations of this concept that could cause confusion ?	As per above		
Line of sight & focus				
	Does the user have to move to get line of sight?	No		
	Can the user focus on it? (bi or vari focal glasses)	Yes		
Conspicuity				
	Is it in the central visual field?	Has to move between input field and keyboard		
	Is it where the user would expect it to be?	Yes		
	How many other related elements are there?	from field, title field, attachments area, button area, navigation keys		
	Does it stands out against other elements/background?	Small size of text and lack of field highlighting		
Clarity				
	What are the key distinguishing features?	Size	Contrast	
	text	small	good	
Differentiation				
	How different is it from other elements visible at the same time?	Text differentiated by location and the font colour being black. No input field highlighting and no label		
	How different is it from other elements visible at other times?	A lack of a field label limits differentiation		
	Could it be confused with commonly used graphics/symbols that indicate something different?	As above		

Usability Problem Prediction

Task Step:				
Issue	Visibility problem	Probability	Impact	Rationale
Email title Input field not identified as such leading to pressing other part of message	Conspicuity, clarity	Low	High	Email title is prepopulated and has no label identifying it.
May struggle to understand 2 forms of cursor navigation available for editing	Concept	Low	High	Abstract representation via dots requires prior knowledge or willingness to explore
Mistyping	(target area)	High	Low	Not a visibility issue but a problem that is likely to occur
May be confused by suggested words above keyboard and their function	Concept	Medium	Low	Suggested words may not be familiar to all users

11. Enter email message

Concept

Focus

Conspicuity

Clarity

Differentiation

Function

Concept

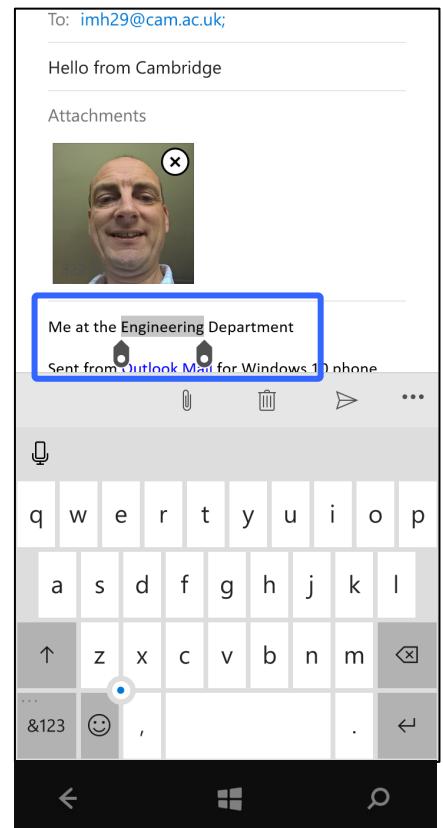
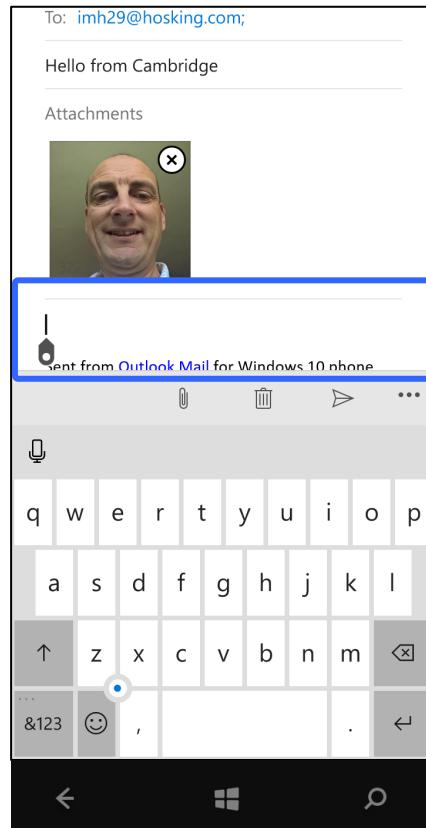
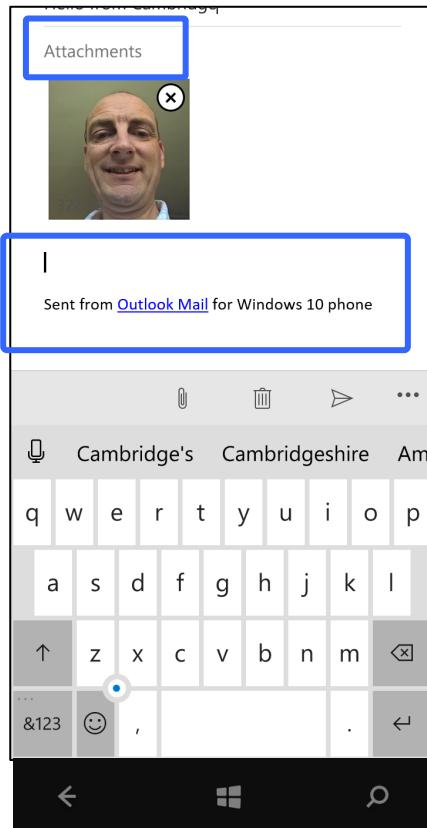
Focus

Conspicuity

Clarity

Differentiation

Operation



Feedback

Concept

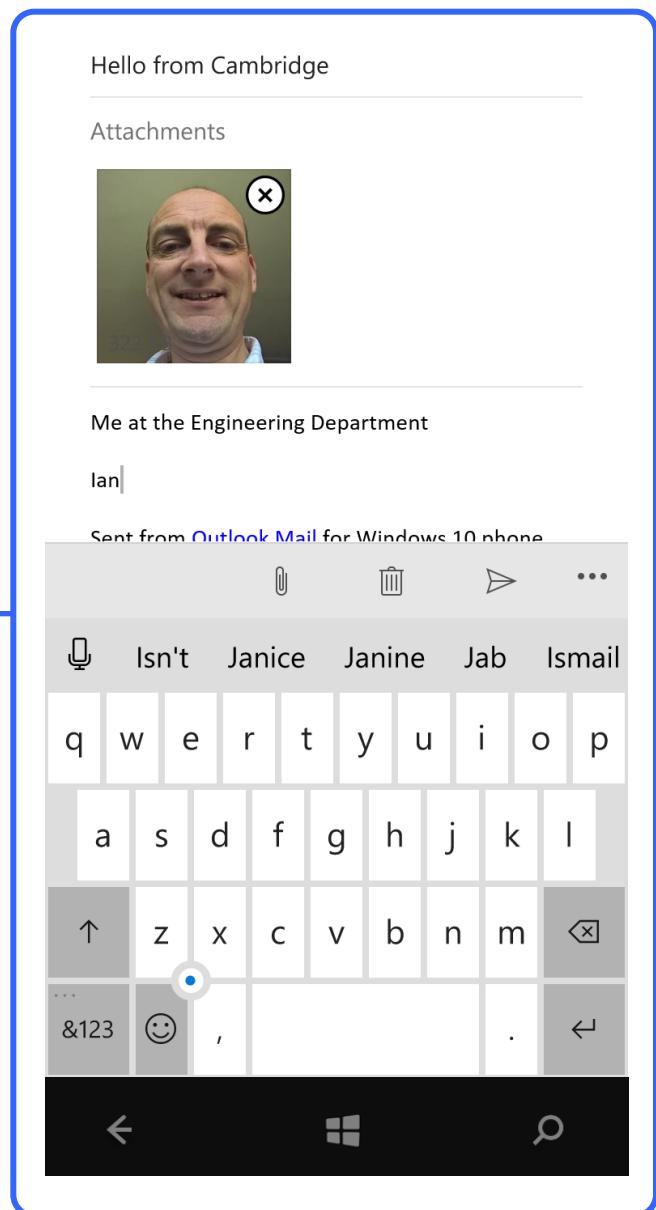
Focus

Conspicuity

Clarity

Differentiation

Feedback



FUNCTION ANALYSIS:

Aspect	Question	Answer	Score	
Concepts				
	What is the concept of the 'function'?	The message area is below the attachment area with typing cursor, insertion cursor and selection cursor		
	How is the concept conveyed visually?	Cursor flashes at the beginning of the text		
	Is it a familiar concept to the user? (check against real examples)	Prepopulated fields are not unusual		
	How well is the concept represented & are there elements missing ?	There is no surrounding box for input field or highlighting of the active field. There is no label text (blank email has placeholder text of "Subject")		
	Are there general variations of this concept that could cause confusion ?	Some input fields have placeholder text that automatically disappears when a field is selected or you start typing. Indeed creating a new email in the Outlook client has this. The only difference being that the text is a light grey.		
Line of sight & focus				
	Does the user have to move to get line of sight?	No		
	Can the user focus on it? (bi or vari focal glasses)	Yes		
Conspicuity				
	Is it in the central visual field?	Yes		
	Is it where the user would expect it to be?	Yes		
	How many other related elements are there?	Keyboard, from field, to field, attachments area, button area, navigation keys		
	Does it stands out against other elements/background?	No highlighting. No label		
Clarity				
	What are the key distinguishing features?	Size	Contrast	
	Top and bottom divider lines	Large but thin	poor	
	Keyboard	Small keys but large overall	okay	
	Flashing cursor	Thin line	okay	
Differentiation				
	How different is it from other elements visible at the same time?	Differentiated by label and divider lines		
	How different is it from other elements visible at other times?	Different styles of input fields		
	Could it be confused with commonly used graphics/symbols that indicate something different?	Could be seen as status as per from field which is only active when there is more than one account (check?)		

OPERATION ANALYSIS:

Aspect	Question	Answer	Score
Concepts			
	What is the concept of the 'operation'?	Input using keyboard with integral cursor control. Cursor placed at the beginning of the line.	
	How is the concept conveyed visually?	On-screen keyboard with switchable panels one alpha, two numeric and one Emoji plus cursor navigation via integral dot that produced 4 arrows when touched	
	Is it a familiar concept to the user? (check against real examples)	For mobile touch devices but cursor navigation is novel	
	How well is the concept represented & are there elements missing ?	Have 4 different panels	
	Are there general variations of this concept that could cause confusion ?	Keyboards only one panel	
Line of sight & focus			
	Does the user have to move to get line of sight?	No	
	Can the user focus on it? (bi or vari focal glasses)	Yes	
Conspicuity			
	Is it in the central visual field?	Split between input field and keyboard	
	Is it where the user would expect it to be?	Yes	
	How many other related elements are there?	from field, to field, attachments area, button area, navigation keys	
	Does it stands out against other elements/background?	Text input is real-time	
Clarity			
	What are the key distinguishing features?	Size	Contrast
	Keyboard	Small keys	Okay
	Input field text	Small	Good
Differentiation			
	How different is it from other elements visible at the same time?	Text appears as typed and black as opposed to grey	
	How different is it from other elements visible at other times?	Labeled input field in clear context	
	Could it be confused with commonly used graphics/symbols that indicate something different?	Not obviously	

FEEDBACK ANALYSIS:

Aspect	Question	Answer		Score
Concepts				
	What is the concept of the 'feedback'?	Text displayed as typed and confirm email address pop-up		
	How is the concept conveyed visually?	Black text appears in input field followed by "use this address: xxxxxx" pop-up		
	Is it a familiar concept to the user? (check against real examples)	Input display of text is common but completion pop-up less		
	How well is the concept represented & are there elements missing ?	There is a underlying lack of highlighting of the active field		
	Are there general variations of this concept that could cause confusion ?	As per above		
Line of sight & focus				
	Does the user have to move to get line of sight?	No		
	Can the user focus on it? (bi or vari focal glasses)	Yes		
Conspicuity				
	Is it in the central visual field?	Has to move between input field and keyboard		
	Is it where the user would expect it to be?	Yes		
	How many other related elements are there?	from field, title field, attachments area, button area, navigation keys		
	Does it stands out against other elements/background?	Small size of text and lack of field highlighting		
Clarity				
	What are the key distinguishing features?	Size	Contrast	
	text	small	good	
Differentiation				
	How different is it from other elements visible at the same time?	Text differentiated by location and the font colour being black. No input field highlighting and no label		
	How different is it from other elements visible at other times?	A lack of a field label limits differentiation		
	Could it be confused with commonly used graphics/symbols that indicate something different?	As above		

Usability Problem Prediction

Task Step:				
Issue	Visibility problem	Probability	Impact	Rationale
Attachment area title looks like a placeholder for message text and may cause user to press it to enter message	Concept	High	Medium	The attachment being above the message body is unusual and compounded by have the title "Attachments" could be perceived as the message body text
The cursor mode may cause confusion and lead to incorrect actions	Concept	Medium	Low	The change in cursor type and different style with other input fields may lead to confusion to which mode the cursor is in. Double tapping to select is has no visibility
Moving the cursor to the required place for text editing may be misunderstood	Concept	Medium	Medium	The lack of traditional cursor keys and the embedded novel cursor navigation or more conventional touch insertion may cause confusion
May be confused by suggested words above keyboard and their function	Concept	Medium	Low	Suggested words may not be familiar to all users

12. Send

Concept

Focus

Conspicuity

Clarity

Differentiation

Function

Concept

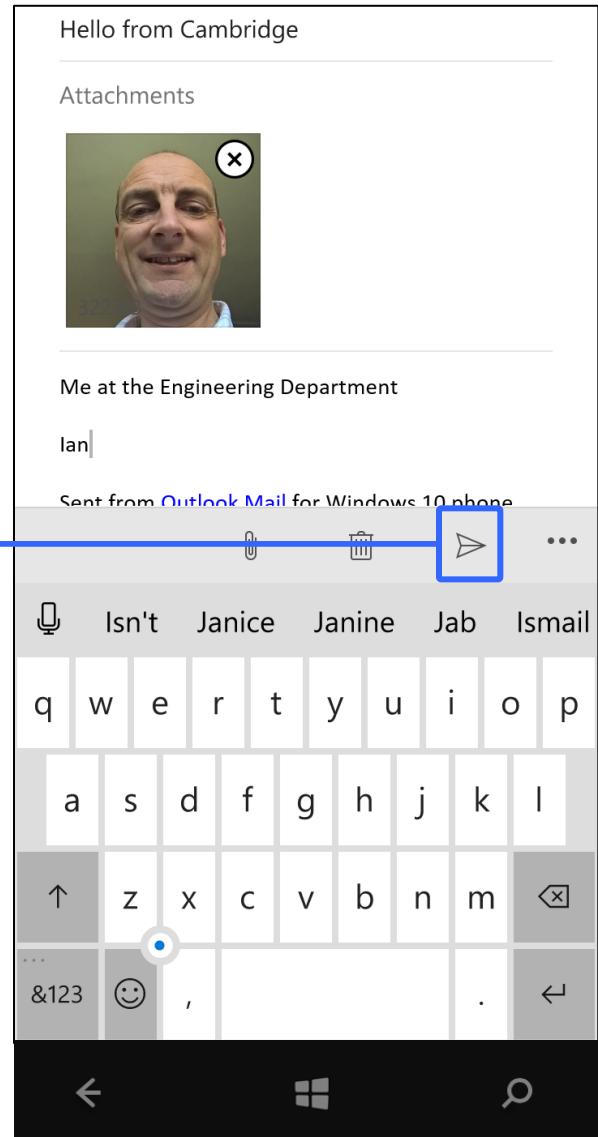
Focus

Conspicuity

Clarity

Differentiation

Operation



Feedback

Concept

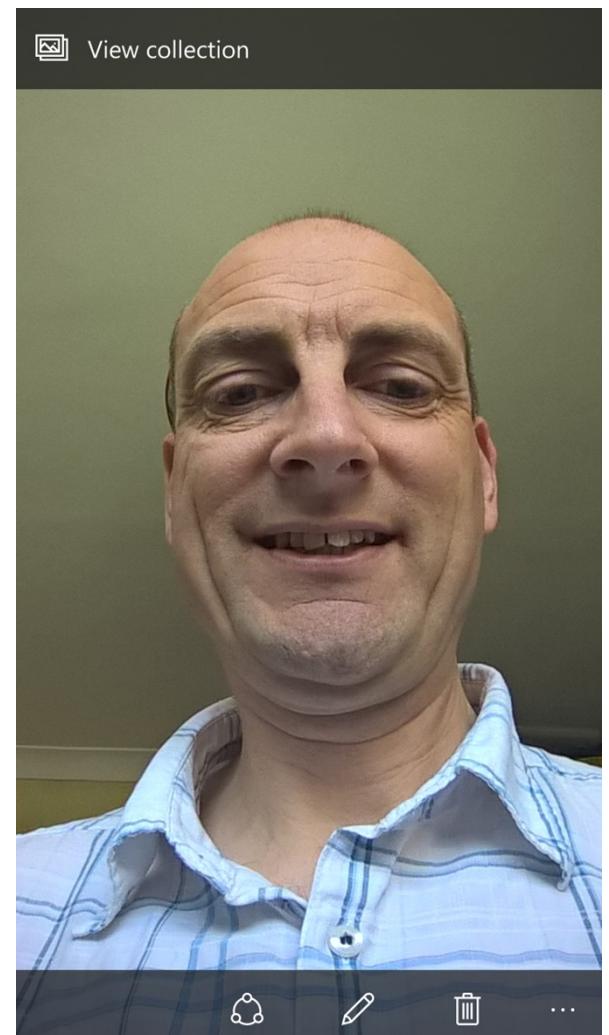
Focus

Conspicuity

Clarity

Differentiation

Feedback



FUNCTION ANALYSIS:

Aspect	Question	Answer	Score
Concepts			
	What is the concept of the 'function'?	A single short duration push button	
	How is the concept conveyed visually?	A paper airplane icon on a button bar	
	Is it a familiar concept to the user? (check against real examples)	Button bars are but not necessarily as part of text input	
	How well is the concept represented & are there elements missing ?	The is no button border or background colour	
	Are there general variations of this concept that could cause confusion ?	Buttons with clear borders and backgrounds	
Line of sight & focus			
	Does the user have to move to get line of sight?	No	
	Can the user focus on it? (bi or vari focal glasses)	Yes	
Conspicuity			
	Is it in the central visual field?	Yes	
	Is it where the user would expect it to be?	Buttons are often at the bottom or top and not in the middle	
	How many other related elements are there?	In excess of 10 depending how you count items e.g. the keyboard	
	Does it stands out against other elements/background?	No! Poor contrast with many other elements	
Clarity			
	What are the key distinguishing features?	Size	Contrast
	Airplane icon	small	poor
Differentiation			
	How different is it from other elements visible at the same time?	The icon is reasonably distinctive in terms of shape	
	How different is it from other elements visible at other times?	It looks like an arrow or go play symbol	
	Could it be confused with commonly used graphics/symbols that indicate something different?	As above	

OPERATION ANALYSIS:

Aspect	Question	Answer	Score
Concepts			
	What is the concept of the 'operation'?	Single short duration press over the symbol	
	How is the concept conveyed visually?	An icon on a button bar with no clear visual cues	
	Is it a familiar concept to the user? (check against real examples)	Increasingly used but different from traditional buttons	
	How well is the concept represented & are there elements missing ?	Poorly and there is not button border or background	
	Are there general variations of this concept that could cause confusion ?	Buttons with clear borders and backgrounds	
Line of sight & focus			
	Does the user have to move to get line of sight?	No	
	Can the user focus on it? (bi or vari focal glasses)	Yes	
Conspicuity			
	Is it in the central visual field?	Yes	
	Is it where the user would expect it to be?	Yes	
	How many other related elements are there?	3: 2 adjacent buttons and text input	
	Does it stands out against other elements/background?	Not well	
Clarity			
	What are the key distinguishing features?	Size	Contrast
	The airplane icon	small	poor
Differentiation			
	How different is it from other elements visible at the same time?	The icon is reasonably distinctive in terms of shape	
	How different is it from other elements visible at other times?	There are other blocks of colour that are not button bars	
	Could it be confused with commonly used graphics/symbols that indicate something different?	As above e.g. status bars	

FEEDBACK ANALYSIS:

Aspect	Question	Answer	Score
Concepts			
	What is the concept of the 'feedback'?	A transient splash screen with progress indicators followed by a return the image	
	How is the concept conveyed visually?	Blue splash screen with mail app icon with a series of moving dots at the top automatically followed by image displayed at the start of the process	
	Is it a familiar concept to the user? (check against real examples)	Clearer progress animations are given and the use of a start-up splash screen is unusual.	
	How well is the concept represented & are there elements missing ?	The moving dots at the top an unusual. No explicit indication of successful sending of the mail.	
	Are there general variations of this concept that could cause confusion ?	Many other ways of indicating progress and success	
Line of sight & focus			
	Does the user have to move to get line of sight?	No	
	Can the user focus on it? (bi or vari focal glasses)	Yes	
Conspicuity			
	Is it in the central visual field?	No indicator at the top	
	Is it where the user would expect it to be?	No progress indicator at the top is unusual	
	How many other related elements are there?	1 – app icon	
	Does it stands out against other elements/background?	No – small and at the top	
Clarity			
	What are the key distinguishing features?	Size	Contrast
	Moving dots	Very small	okay
Differentiation			
	How different is it from other elements visible at the same time?	Good only the app icon is visible	
	How different is it from other elements visible at other times?	Look like full stops	
	Could it be confused with commonly used graphics/symbols that indicate something different?	As above	

Usability Problem Prediction

Task Step:				
Issue	Visibility problem	Probability	Impact	Rationale
Not identifying the button and giving up	Concept, differentiation	Low	High	Button is abstract
Pressing the wrong on screen button	Concept, differentiation	High	High	Other buttons could be mistakenly chosen
Pressing one of the navigation buttons	Concept, differentiation	Low	High	The user may look for other options

13. Return to home screen

Concept

Focus

Conspicuity

Clarity

Differentiation

Function

Concept

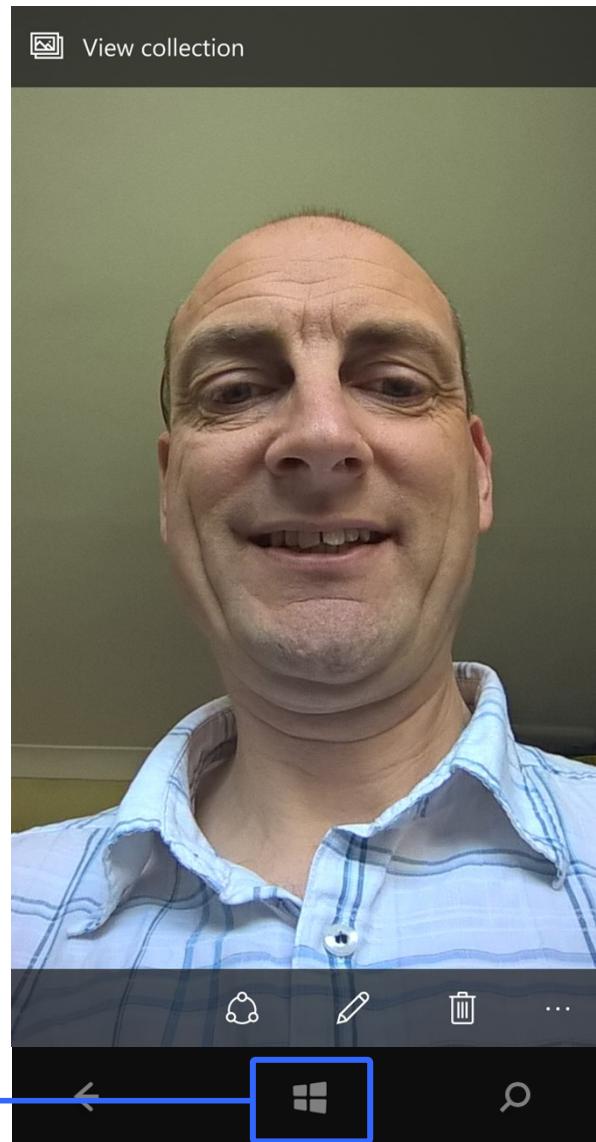
Focus

Conspicuity

Clarity

Differentiation

Operation



Feedback

Concept

Focus

Conspicuity

Clarity

Differentiation

Feedback



FUNCTION ANALYSIS:

Aspect	Question	Answer	Score
Concepts			
	What is the concept of the 'function'?	A dedicated home button	
	How is the concept conveyed visually?	A faint Microsoft icon that lights up	
	Is it a familiar concept to the user? (check against real examples)	iOS and Android have physical home buttons	
	How well is the concept represented & are there elements missing ?	There is no button outline and lighting reduces depending on ambient light and it has a time out	
	Are there general variations of this concept that could cause confusion ?	On screen versus off screen buttons and physical buttons	
Line of sight & focus			
	Does the user have to move to get line of sight?	No	
	Can the user focus on it? (bi or vari focal glasses)	Yes	
Conspicuity			
	Is it in the central visual field?	At the bottom	
	Is it where the user would expect it to be?	Yes is used to iOS or Android but not all phones	
	How many other related elements are there?	4 on screen buttons and back and search key	
	Does it stand out against other elements/background?	Depends on ambient light and timing	
Clarity			
	What are the key distinguishing features?	Size	Contrast
	Windows brand icon	Small-medium	Can be almost invisible
Differentiation			
	How different is it from other elements visible at the same time?	Shape only	
	How different is it from other elements visible at other times?	Could be confused with branding	
	Could it be confused with commonly used graphics/symbols that indicate something different?	Windows key on conventional QWERTY keyboard	

OPERATION ANALYSIS:

Aspect	Question	Answer	Score
Concepts			
	What is the concept of the 'operation'?	Single short duration press	
	How is the concept conveyed visually?	Icon	
	Is it a familiar concept to the user? (check against real examples)	Buttons are increasingly icon only	
	How well is the concept represented & are there elements missing ?	No button border or background	
	Are there general variations of this concept that could cause confusion ?	As above	
Line of sight & focus			
	Does the user have to move to get line of sight?	No	
	Can the user focus on it? (bi or vari focal glasses)	Yes	
Conspicuity			
	Is it in the central visual field?	Yes once located	
	Is it where the user would expect it to be?	Yes once located	
	How many other related elements are there?	Button bar above and search and back keys but well spaced	
	Does it stands out against other elements/background?	Can be almost invisible	
Clarity			
	What are the key distinguishing features?	Size	Contrast
	Icon	Small-medium	Can be almost invisible
Differentiation			
	How different is it from other elements visible at the same time?	Well spaced to other buttons	
	How different is it from other elements visible at other times?	Could be confused with branding but assumes function identified	
	Could it be confused with commonly used graphics/symbols that indicate something different?	Windows key on conventional QWERTY keyboard but assumes function identified	

FEEDBACK ANALYSIS:

Aspect	Question	Answer	Score
Concepts			
	What is the concept of the 'feedback'?	Whole screen changes to home screen	
	How is the concept conveyed visually?	Rapid change to home screen with transition animation	
	Is it a familiar concept to the user? (check against real examples)	Going to a home point is common	
	How well is the concept represented & are there elements missing ?	Quick and clear transition	
	Are there general variations of this concept that could cause confusion ?	Nothing obvious	
Line of sight & focus			
	Does the user have to move to get line of sight?	No	
	Can the user focus on it? (bi or vari focal glasses)	Yes	
Conspicuity			
	Is it in the central visual field?	Yes	
	Is it where the user would expect it to be?	Yes	
	How many other related elements are there?	Whole screen change	
	Does it stands out against other elements/background?	Whole screen change	
Clarity			
	What are the key distinguishing features?	Size	Contrast
	Whole screen change	Large	Depends on photo
Differentiation			
	How different is it from other elements visible at the same time?	Whole screen change the only problem is where the picture is a screen shot of the homes screen which would be rare but confusing. The home screen can be screen captured accidently.	
	How different is it from other elements visible at other times?	Whole screen change	
	Could it be confused with commonly used graphics/symbols that indicate something different?	Whole screen change	

14. Put into standby

Concept

Focus

Conspicuity

Clarity

Differentiation

Function

Concept

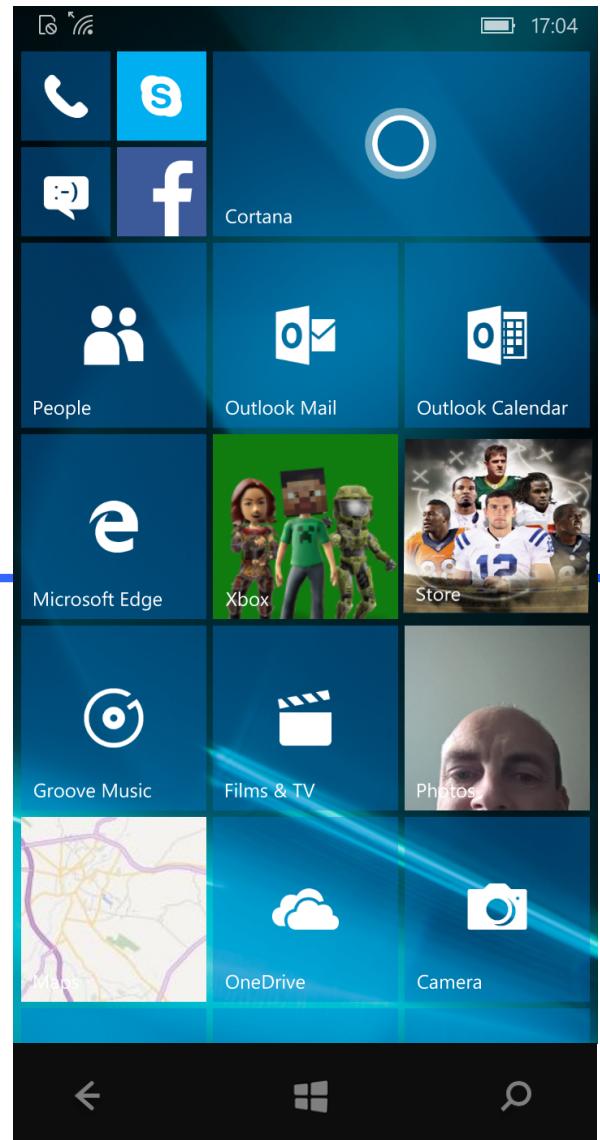
Focus

Conspicuity

Clarity

Differentiation

Operation



Feedback

Concept

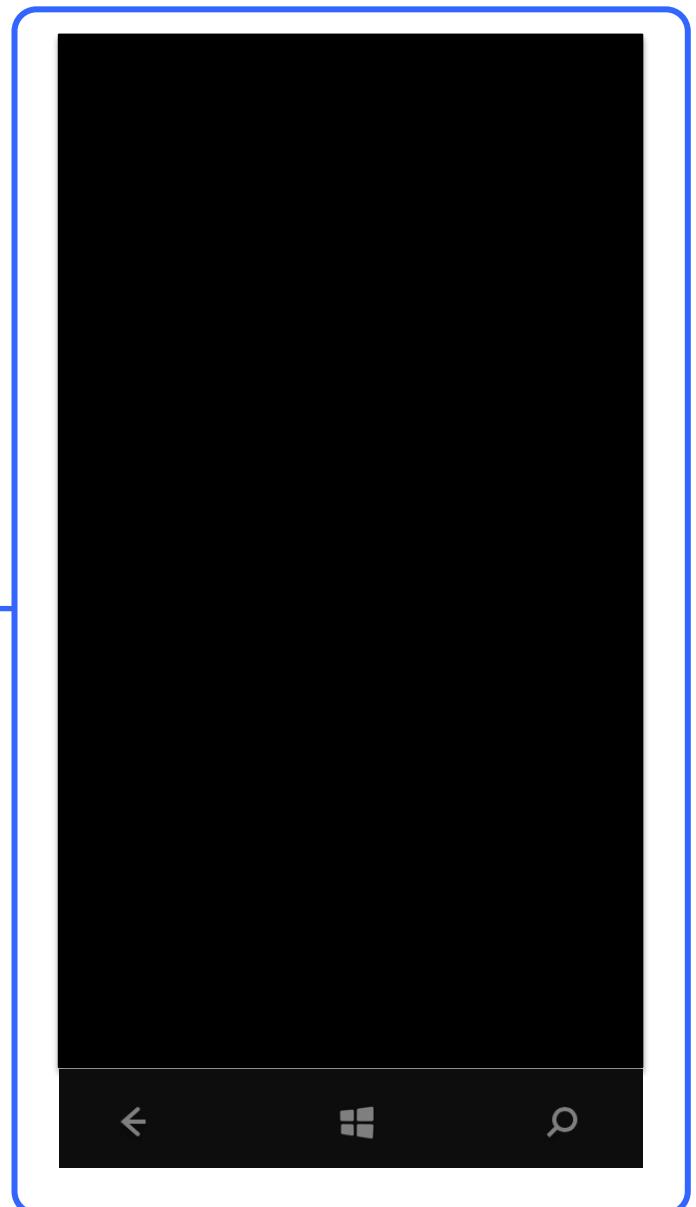
Focus

Conspicuity

Clarity

Differentiation

Feedback



FUNCTION ANALYSIS:

Aspect	Question	Answer	Score
Concepts			
	What is the concept of the 'function'?	A physical dedicated on/off button (that 'operates' by a short press)	
	How is the concept conveyed visually?	Narrow rectangular shape that is proud of the surrounding frame	
	Is it a familiar concept to the user? (check against real examples)	Dedicated power+lock buttons are common. Assume some learning from having unlocked the phone.	
	How well is the concept represented & are there elements missing ?	There is no label or symbol to indicate its function. There is no distinction between be 'lock' and 'power'	
	Are there general variations of this concept that could cause confusion ?	Yes. Keys can be overloaded and other phones have it at the top or front. Some keys like this can be sliders. Some computers have menu driven power control	
Line of sight & focus			
	Does the user have to move to get line of sight?	Yes if looking at the front. Can be done by hand movements	
	Can the user focus on it? (bi or vari focal glasses)	Yes	
Conspicuity			
	Is it in the central visual field?	It is on the side and therefore may not be if the phone is held face on.	
	Is it where the user would expect it to be?	Phone on/off buttons have varied locations e.g. the top	
	How many other related elements are there?	1 of 3 on the side (camera & volume)	
	Does it stand out against other elements/background?	The contrast is poor (silver on silver) and there are 2 other similar buttons on the same side	
Clarity			
	What are the key distinguishing features?	Size	Contrast
	- Button edge	Okay	Very poor (silver on silver)
	- Shape	Okay	Very poor (silver on silver)
Differentiation			
	How different is it from other elements visible at the same time?	There are two other silver on silver buttons with no labels	
	How different is it from other elements visible at other times?	The UI is all on screen with nothing similar	
	Could it be confused with commonly used graphics/symbols that indicate something different?	Plain silver buttons are not associated with specific functions	

OPERATION ANALYSIS:

Aspect	Question	Answer	Score	
Concepts				
	What is the concept of the 'operation'?	Operates by a short press. A long press goes into power off mode.		
	How is the concept conveyed visually?	Shape that is proud of the surrounding frame		
	Is it a familiar concept to the user? (check against real examples)	Variation of press duration is used on different devices but the length of variation and conceptual understanding is hard to assess		
	How well is the concept represented & are there elements missing ?	The duration of the required press is not indicated and there is no indication of the overloading of 2 functions ('lock' versus 'power off')		
	Are there general variations of this concept that could cause confusion ?	Yes. Variation in duration and activation e.g. when duration met or when met and released. Also power buttons are used to powering off and sleep through different durations of pressing		
Line of sight & focus				
	Does the user have to move to get line of sight?	Assume already looking at it		
	Can the user focus on it? (bi or vari focal glasses)	Can move the arm to bring it into focus		
Conspicuity				
	Is it in the central visual field?	Assume already looking at it		
	Is it where the user would expect it to be?	Yes if identified as on/off button		
	How many other related elements are there?	It is a single button		
	Does it stand out against other elements/background?	The contrast is poor between the button and its surround		
Clarity				
	What are the key distinguishing features?	Size	Contrast	
	- Button edge	Okay	Very poor (silver on silver)	
	- Shape	Okay	Very poor (silver on silver)	
Differentiation				
	How different is it from other elements visible at the same time?	Assume already looking at it but the button and the surrounding have poor contrast		
	How different is it from other elements visible at other times?	There are no silver buttons used on the screen		
	Could it be confused with commonly used graphics/symbols that indicate something different?	Plain silver buttons are not associated with specific functions		

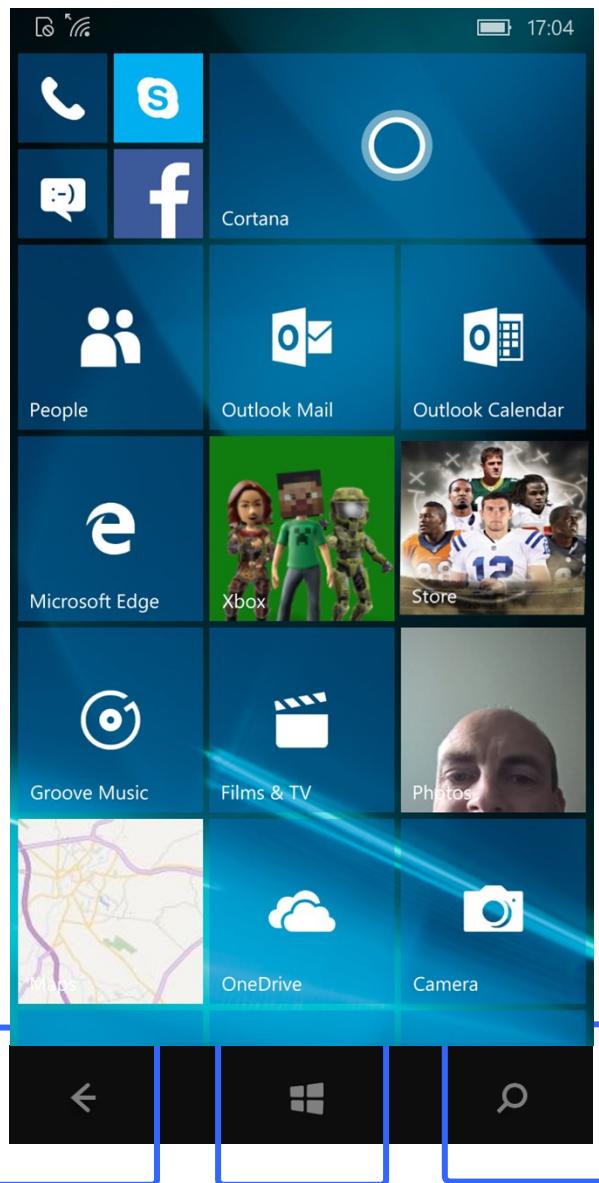
FEEDBACK ANALYSIS:

Aspect	Question	Answer	Score
Concepts			
	What is the concept of the 'feedback'?	The screen is no longer on	
	How is the concept conveyed visually?	The screen goes black	
	Is it a familiar concept to the user? (check against real examples)	Screens being on and off is familiar but the difference between being in 'locked' and 'powered off' is not clear	
	How well is the concept represented & are there elements missing ?	No visual distinction is made between 'locked' and 'powered off'	
	Are there general variations of this concept that could cause confusion ?	PC's typically have menu based control of different power states	
Line of sight & focus			
	Does the user have to move to get line of sight?	Potentially need to move phone from viewing button to screen. But should be logical for the task	
	Can the user focus on it? (bi or vari focal glasses)	Yes	
Conspicuity			
	Is it in the central visual field?	Yes assuming moved phone to view screen	
	Is it where the user would expect it to be?	Yes	
	How many other related elements are there?	Full screen change	
	Does it stands out against other elements/background?	Full screen change	
Clarity			
	What are the key distinguishing features?	Size	Contrast
	Full screen change	Large	High
Differentiation			
	How different is it from other elements visible at the same time?	Full screen change	
	How different is it from other elements visible at other times?	No different from power off	
	Could it be confused with commonly used graphics/symbols that indicate something different?	Apart from point made above not obviously	

Usability Problem Prediction

Task Step:				
Issue	Visibility problem	Probability	Impact	Rationale
The user presses the wrong button e.g. camera or volume	Differentiation	High	High	Identical and similar buttons on the side could cause confusion and the camera button may mean the user gets 'stuck' in the camera app
The user presses the button for too long and powers the phone off	Concept, differentiation	Medium	High	There is not visual indication of the two functions and the concept is power states is potentially confusing
The user looks for a software based standby mode instead of a button	Concept	Very low	High	Although unlikely a user may look for a software based option based on prior experience of PC's

Relevant global functions: Navigation Keys



The home key is overload with one hand mode (makes screen operate in the lower half only) this is activated by a long press

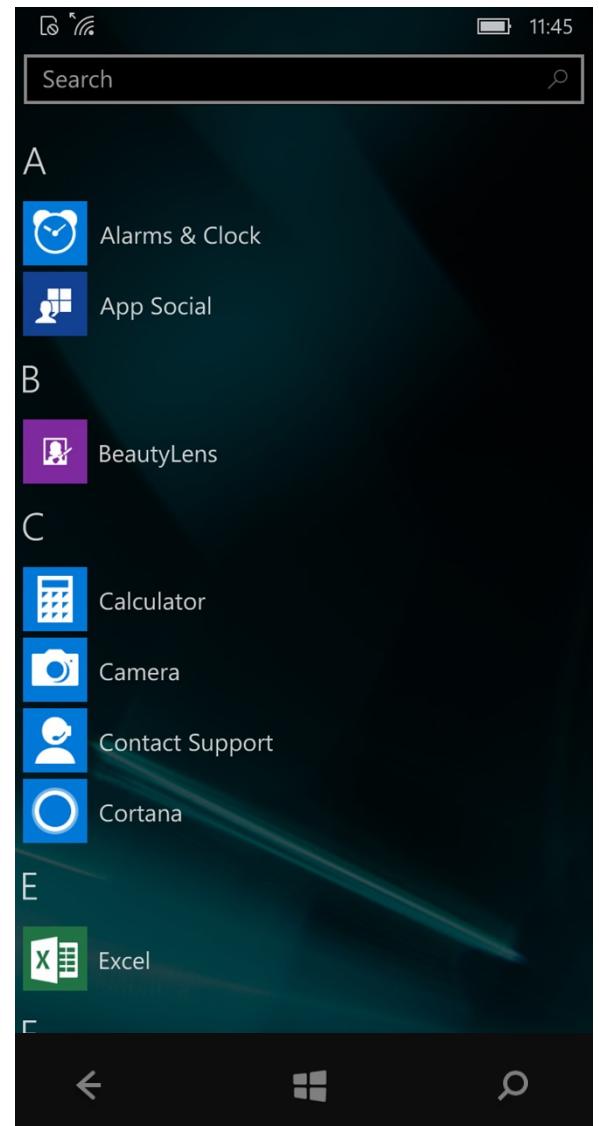
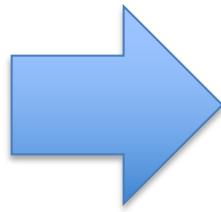
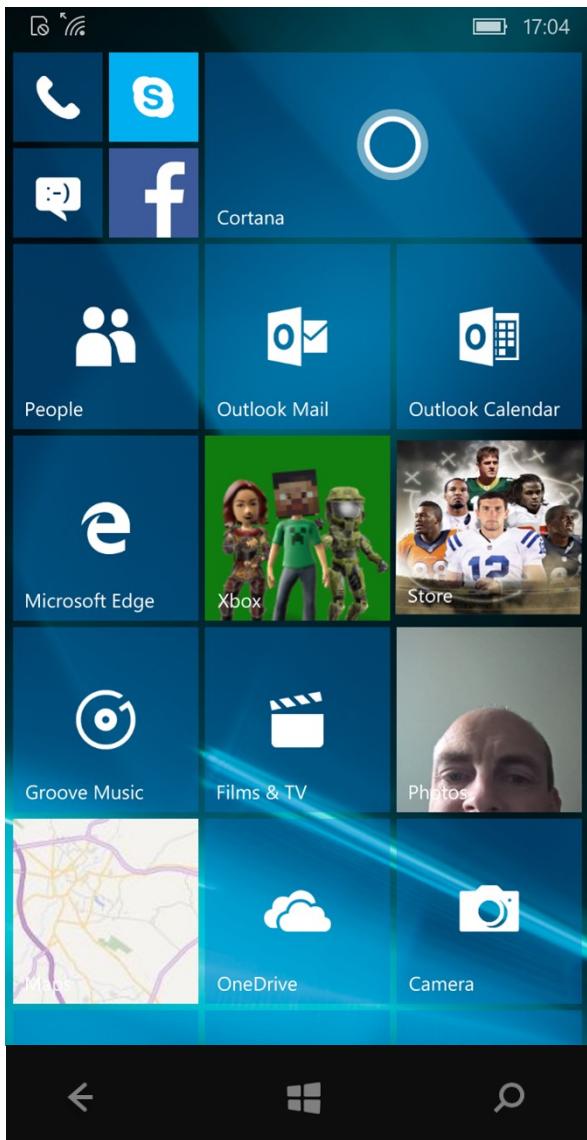
The back button goes back historically and across apps this is different from iOS and Android. There is no visibility of what the back step is. The function is overloaded as pressing and holding brings up the app switcher

The search brings up Cortana which is a voice and keypad entry search app

Usability Problem Prediction

Task Step:				
Issue	Visibility problem	Probability	Impact	Rationale
Confusion over where 'back' goes and ending up moving out the required app	Overall lack of visibility	Low	High	The user has no need to use these feature unless they end up on the wrong track
Accidental activation of app switcher (from back)	Overall lack of visibility	Very low	High	No visibility of overloaded function
Accidental activation of one hand mode (from home)	Overall lack of visibility	Very low	High	No visibility of overloaded function
Confusion over nature of Cortana (from search)	Overall lack of visibility	Very low	High	Complex functionality of Cortana

Relevant global functions: App Launcher



The app launcher is accessed via a right to left swipe or from the "All apps" button at the bottom (requires scrolling down) Home screen.

Usability Problem Prediction

Task Step:				
Issue	Visibility problem	Probability	Impact	Rationale
The user gets confused about the nature of the the difference between the home screen and “All apps”	General	Low	High	There is no direct visual indication of the difference between the two in terms of function e.g. live tile which launches the app and just app launching apart from any live info on some apps