

Happier + Healthier

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Master of Design in Interaction Design

The School of Design
Carnegie Mellon University

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1. Project Definition

The goal of this project is to structure a set of service design recommendations for the Student Health Services at Carnegie Mellon University. This design intervention should suggest improvements and provide tools for the internal stakeholders so that changes are not only executed and effective but also embraced and sustainable over time.

2. Design Plan

This project aims to find and develop concrete ways to improve the working lives of the staff in SHS. In order to do that we consider the staff as our best source of information, they are experts in what they do and they own the system and processes inside the clinic. We believe that their involvement will result not only in a more adequate intervention but also an intervention more suitable to be sustained and enriched by the people in the system.

After defining the goals and definition of the project, a plan for research and design was developed over four phases: Discovery, Synthesis, Innovation and Refinement.

2.1 Discovery

2.1.1 Environment Description

Student Health Services (SHS) at Carnegie Mellon University offers a variety of basic medical services to university students much like that of a doctor's office. The SHS deals with prevention and treatment of minor illness. In previous work it was identified that because the SHS location was not planned specifically for the delivery of this kind of service, the resulting improvisation in procedures and processes lead to less than satisfying experiences for the student patients. The staff is professional but must cope with working under less than ideal conditions. The goal of this project is to come up with a set of design concepts that would improve the perception of service delivery from SHS.

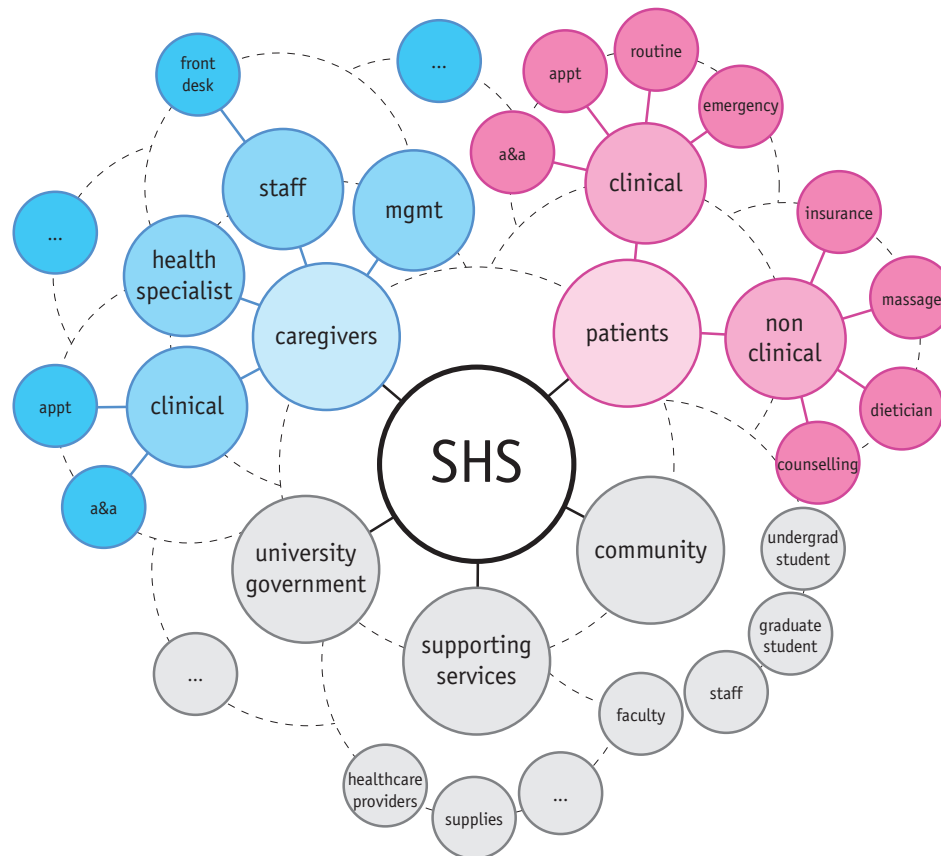


2.1.2 Customer and Stakeholder identification

Stake-hold-er : One who has a share or an interest, as in an enterprise.

Source: *The American Heritage® Dictionary of the English Language, Fourth Edition*

The SHS clinic has many stakeholders, as shown in the diagram below. They include customers (students), clinical staff, non-clinical staff, the university government, other student health clinics, other health services such as hospitals and doctor’s offices, clinical & non clinical suppliers, clinical associations, insurance companies. Inside each one of the previously mentioned categories, there are different subcategories that can be classified in terms of how critical they are to the organization.



SHS stakeholders diagram

2.1.3 Organization core competency and perception

SHS core competency

The Student Health Services (SHS) at Carnegie Mellon offers a variety of basic medical services to university students much like that of a doctor's office. The SHS deals with prevention and treatment of minor illness.

SHS Vision

A community that promotes and supports the integration of wellness principles into the lifestyle of its members as a result of effective leadership, quality care and education.

SHS Mission

To deliver quality, cost-effective health care that meets the physical, emotional, social and spiritual needs of the diverse enrolled student population we serve.

SHS Perception

Most of the time students stop in the clinic in the middle of their school day, hoping to get quick medical advice. The opinions about the service are extremely divided. Some students really like the service and some others dislike it so much that they try to avoid it as much as they can. Our research revealed two main negative emotional reactions: feeling mistreated and feeling ignored.

The following quotes have been extracted from the research conducted with students. The methods used include 1:1 student interviews, paper survey, shadowing, and on-site interviews.

"It's like your only choice is McDonald 's when you ready go out for a nice meal."

"Well.. It's not good, but it's OK. People are nice."

"They have monopoly. As a student with really terrible health insurance, no other options where I can go. Student health center is on campus, convenient and cheap. Because of that they don't need to have high quality."

"I hate going because I come out feeling terrible. I felt like I've been treated horrible a whole time. It's the overall bad experiences every time I go."

2.1.4 Market Conditions

The SHS clinic is the only Health Care provider on campus. One would think that off-campus Health Care providers would represent its competition. But unless those Health Care providers would contract with the university and take over the administration of the service on campus, they do not represent any risk to the clinic or its operations. In most cases the hospitals around Pittsburgh represent a way to outsource some of the clinical, counseling and laboratory work that the SHS clinic requires.

The SHS clinic occupies a small yet very influential niche in the student's access to Health Care. This happens not only because its basic clinical capabilities but because the service moments of the SHS clinic occur in a very particular timeframe and location. The fact that it happens inside the university campus and a lot of the times in between classes makes it very different from a hospital or a traditional doctor's office.

The clinic operates with a very limited budget that gets nurtured once or twice a year by additional non-profit grants. It is because of these budget constraints that economically significant improvements are not easy to implement.

2.1.5 Brand Audit

The SHS has recently hired a part time marketing specialist. Her Job among other things consists of creating visibility and consistency to the clinic image. One of the things she has worked on is promoting particular services that the clinic offers such as smoking cessation, HIV tests and contraception methods.

While having a specialist on site, the clinic still needs a more directed effort. One where the branding priorities are in line not only with the small and unadvertised services but more importantly with the clinic's main competency and initial touch-points. We believe that the branding of the clinic must be evident in all the elements that compose the service interface, those include: information materials (online or physical), facilities and people.

2.1.6 Research methods & implications

On site Observation	
1:1 student interviews	15 *
1:1 interviews with students from other institutions	6 *
Paper Survey	21 *
1:1 staff interviews	12
Student Paper survey On Site	18
Student Experience Journal (written)	3

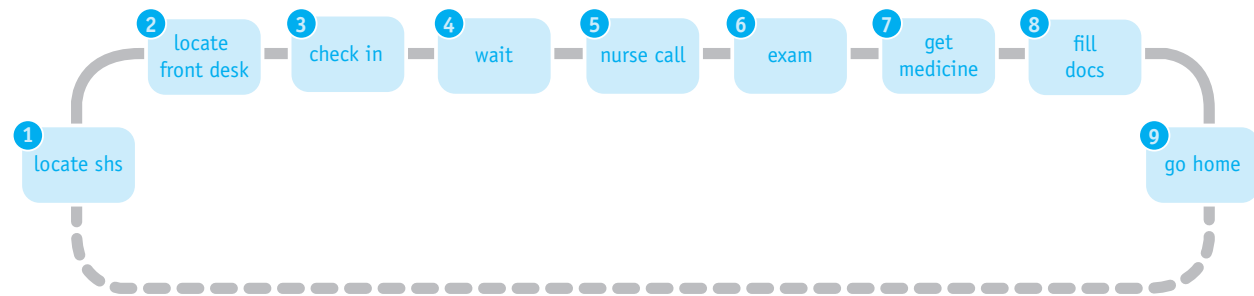
Findings

Student's opinion is very divided; a big percentage of the population feels well served at the clinic, while the rest of it ranges from indifferent students to detractors. We realized that the students discomfort was strongly related to their expectations of the service. As collected in student interviews, previous experiences in other clinical settings are what drive the way the students think about the service when they first encounter it. Yet, the SHS clinic has a very particular task that is performed in a particular way by a particular set of people. The similarities between the SHS and a hospital clinic or a doctor's office are only related to the industry they belong to. In practice the ways in which the clinic works are very different.

Staff is devoted and most of the times finds a lot of satisfaction while performing their job. However, staff members are not always emotionally expressive.

* Done by the Super Healthy Team in a previous iteration of this project

The customer journey for the walk in service is formed by 9 steps, only two of these are clinical ones. A student patient needs to go through 5 steps before getting service at the clinic. These steps are not currently taken care of. The clinic focuses mostly on the clinical tasks and little consideration is given to the other steps in the journey.



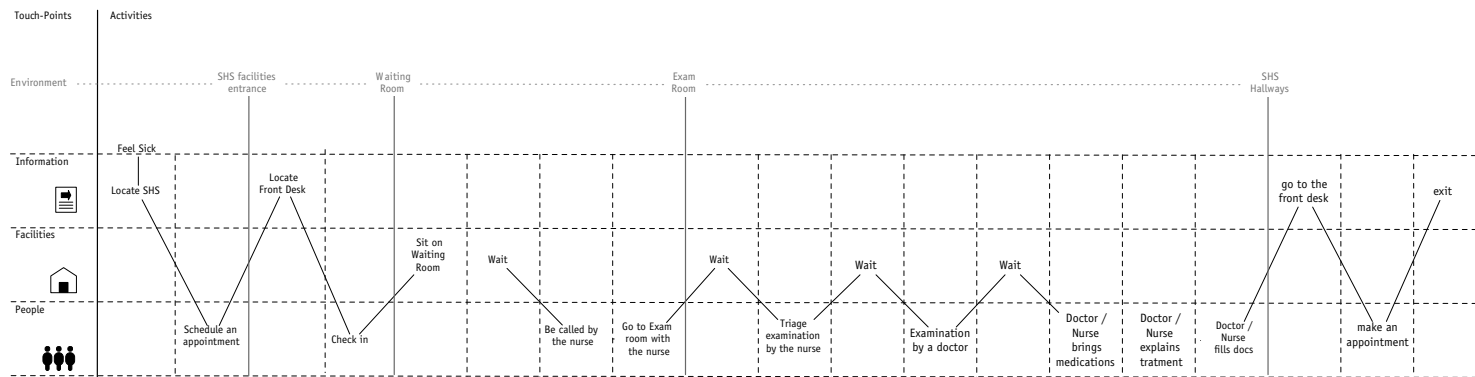
Walk In Journey

2.2 Synthesis

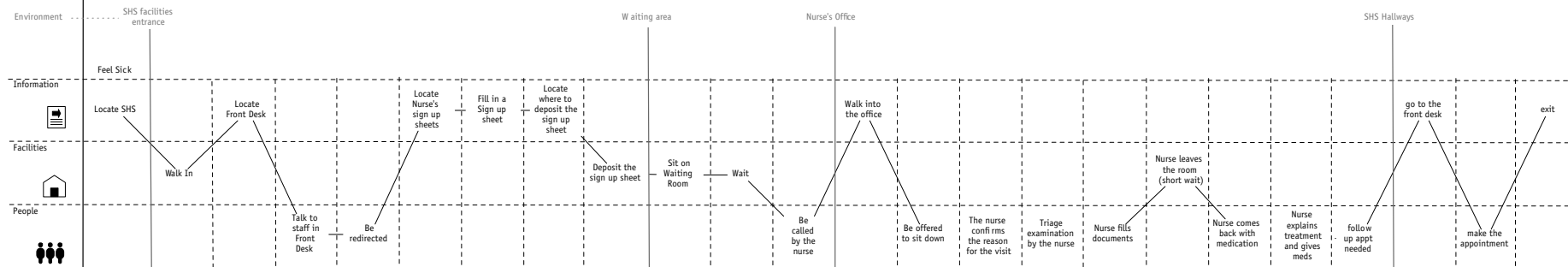
2.2.1 Process Mapping

SHS Service Blueprint-Touchpoints

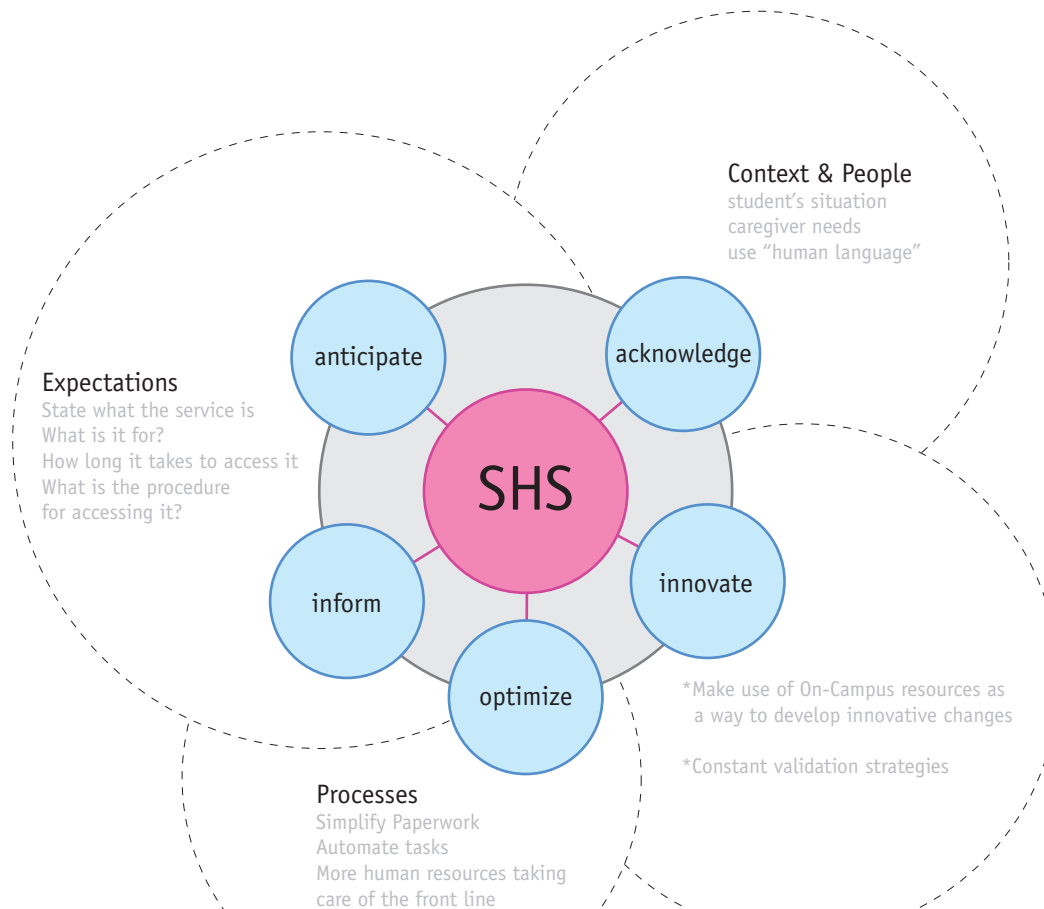
Appointment consequent appointments, chronic conditions, etc...



Without an Appointment Non-Threatening sickness / injuries



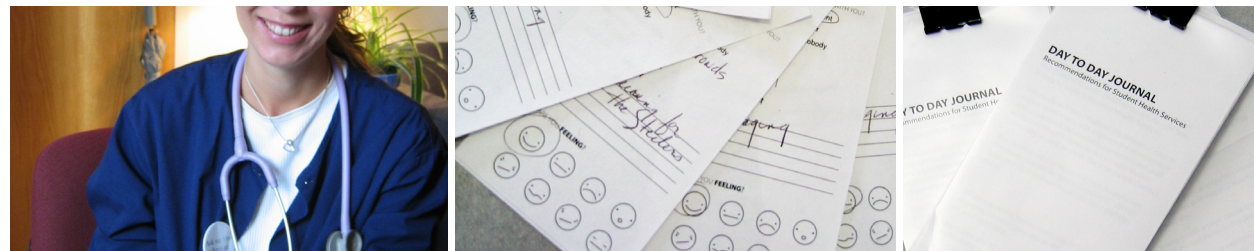
2.2.2 Customer Typology

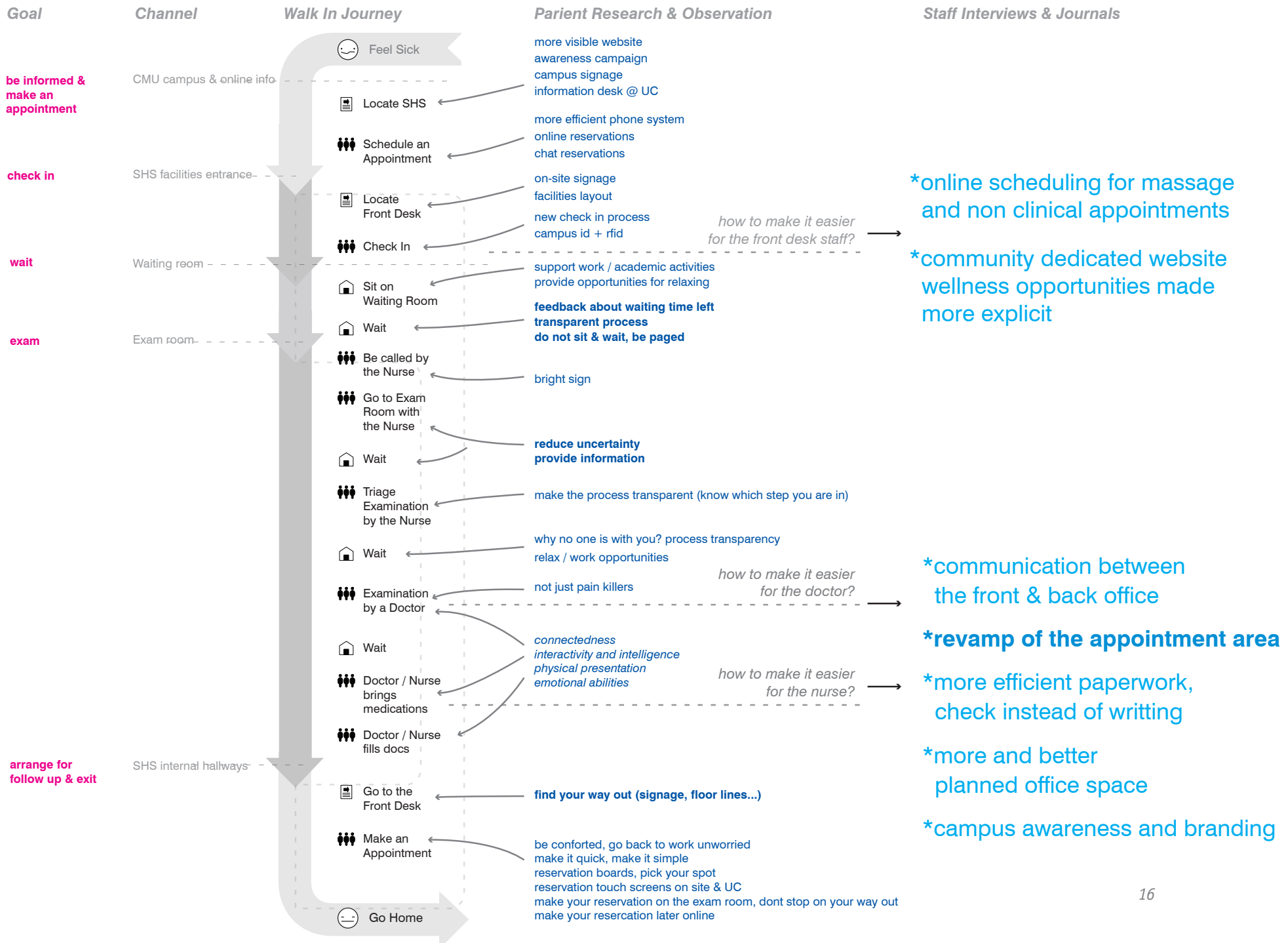


2.2.3 Research methods & implications

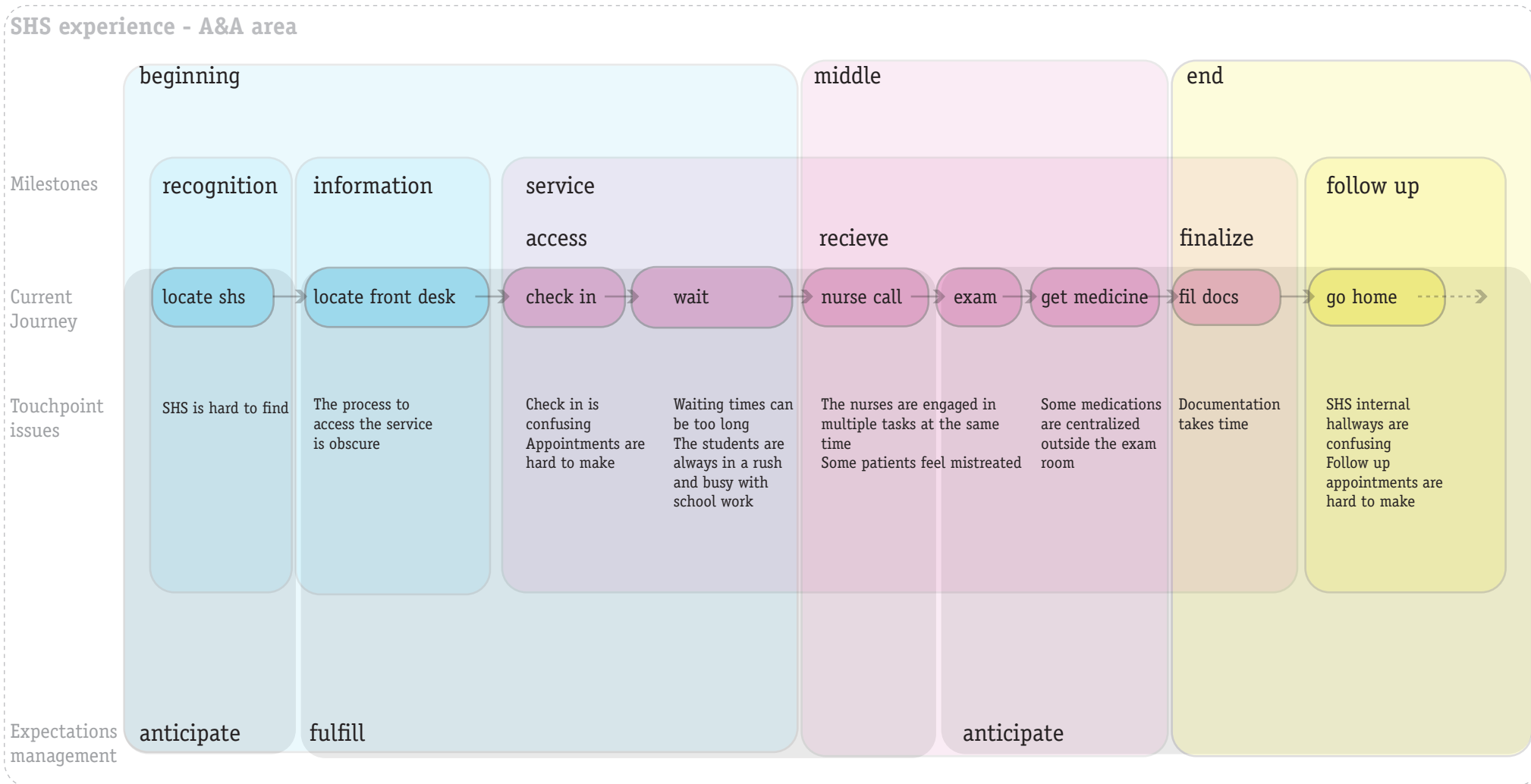
Staff Journal	6
Expert interview	2
Walk a mile	1

Comparing the areas for improvement as perceived by the staff and the customer complaints, the Advice and Appointment (A&A) area was perceived as a problem area both from the student side and the staff side. Because it is one of the first areas a student has contact with, the A&A area is a main source and contributor to how the clinic is perceived. We decided to narrow the project to this particular area.





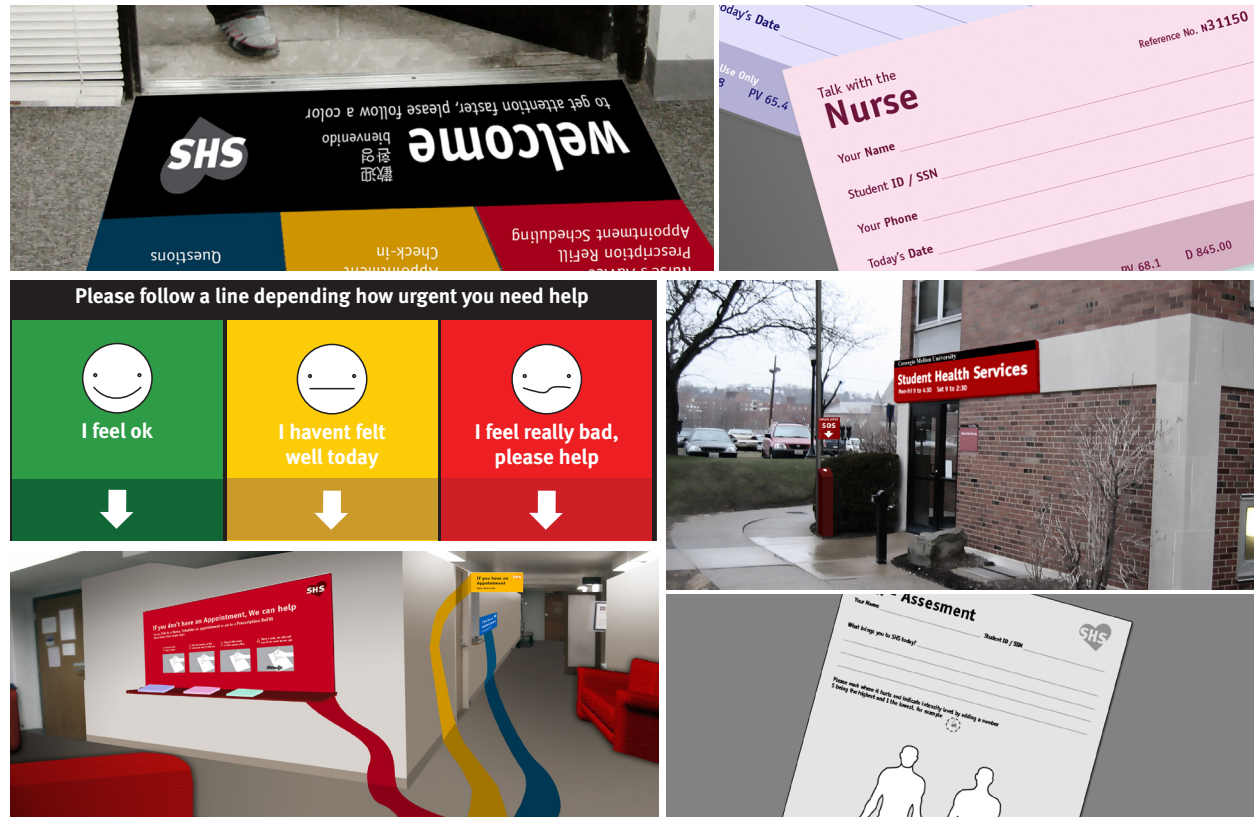
2.2.5 Refined territory map



2.3 Innovation

2.3.1 Moment Concepts

A series of sketches containing possible improvements for each step in the A&A journey



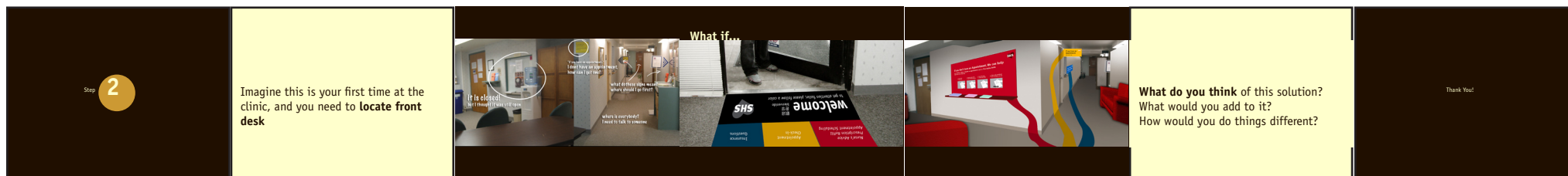
2.3.2 Town meeting (Participatory Design)

A Town Meeting or participatory work session was held, with all the staff of the clinic.

The session started with a brief introduction covering the research findings and the identified service breakdowns and perceived opportunities for improvement. The concept of Student Journeys was illustrated in order to show how changes in the journey would impact, and could improve the perception of the SHS. The current A&A journey has 9 steps. The session focus was limited to the non-clinical steps within the journey. The staff was assured that they were the 'experts'. They were instructed that the materials to be presented were by no means fixed or absolute, but there to spark ideas from them.

To introduce the activity in a non-threatening but controlled fashion, we made moment flipbooks. One for each step in the process that could be improved with little effort but with noticeable impact on the perception of service quality. Flipbooks are analog and tangible, and have the added ability to reveal their content over time. The flipbooks contained the student-patient's intent, what the environment offered and finally some rough sketches around what could be done to improve the experience for each step in the journey. The problem areas from the journey that were presented were general. The solutions, as illustrated by the sketches, were very particular and suggested many other changes that would impact the service offering. The sketches in the flipbook illustrated that even small changes can affect the perception of the clinic and its service as a whole.

Moment Flip-Book



1. Introduce the task & difficulties

2. Suggest improvements

3. Refine / discuss

Participants were asked to number themselves from 1 to 4 to break up the different cliques and to ensure diverse skills in the teams. As the teams opened the flipbooks, they were asked to talk about what they observed in the images. Sketches in the flipbooks were intentionally rough. The first thing presented was a description of an activity that needed to be performed, secondly a photograph of the setting where this activity is supposed to take place. Next, the teams were asked to flip again, they were presented with a sketch of a modified setting where the activity was easier to perform. They were asked to engage in discussion and make notes. Finally, they were asked to draw on vellum tracing paper what they thought needed to be changed in the sketches including suggestions for how they thought the changes should be embodied. The simplicity of the flipbooks and sketches made it easy for each team to actively relate to content of the activity and not see the suggested solutions as imposed or fixed but one where they had a direct and continuous influence. After the teams were done discussing the activities and alternatives, they were asked to present their work to the rest of the group. Each team proudly presented the activities, insights and possible solutions as the rest of the staff made comments about the activities and the proposed solutions. The staff was engaged, very enthusiastic, and participative. The discussions expanded to other problems that need solving and were not represented in the flipbooks.



2.3.3 Experience Strategy

The Town Meeting facilitated the integration staff's insights with those of the designer. Special effort was made to make the staff contributions highly visible. The refined sketches were presented to the staff one week after, at the clinic's weekly meeting. This time the service concepts were printed and passed around. The staff was asked to review the ideas again and make notes on the print out wherever they felt a change or correction was needed. Feedback from the meeting was tabulated and the sign in process, comprising two of the seven steps in the patient journey, was selected for on-site evaluation and testing.

2.4 Refinement

2.4.1 On Site testing

2.4.1.1 First Iteration

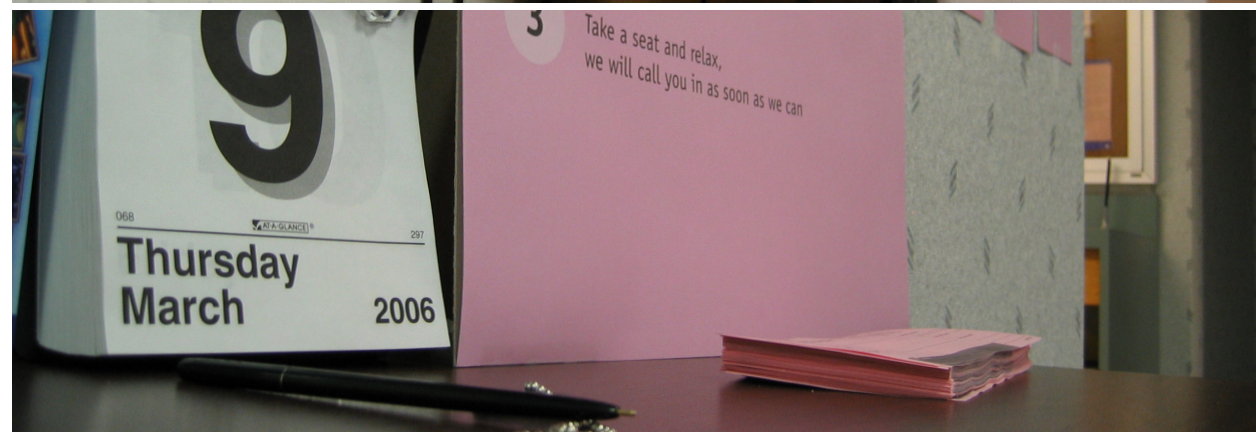
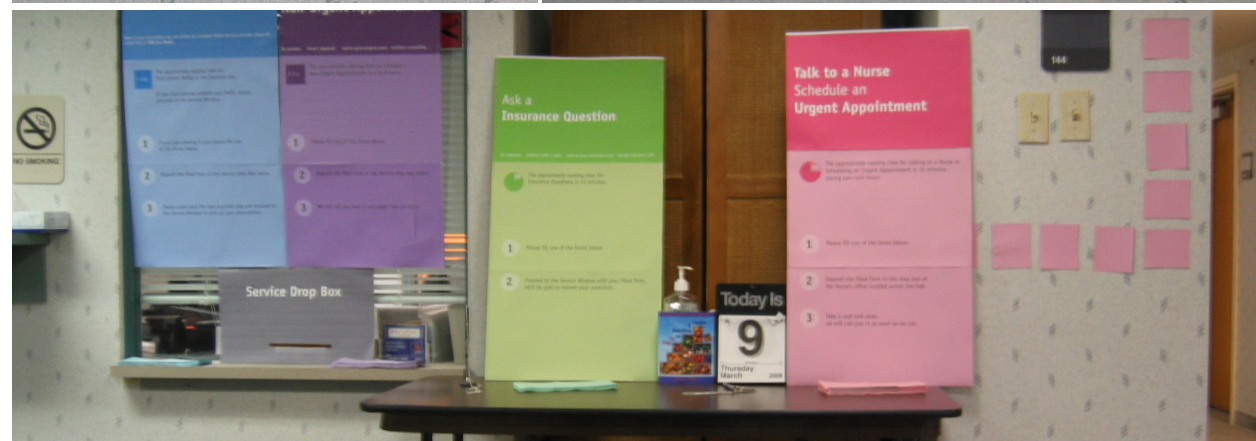
A full-scale mock-up was created and placed in the clinic for evaluation. The mock-up consisted of a series of instructional signs to guide students through the process of accessing one of four services at the clinic. The signs were paired with custom sign-in sheets, which had been redesigned to gather particular information as required by the caregivers. The sign-in sheets had a small survey attached to it. The survey consisted of a series of facial expressions. Students were asked to circle the facial expression that best matched their perception of the service and the changes to the process, we also asked if they found the form useful and ideas for improvement.

Signage and surveys were installed for three weeks. At the end, the study the surveys were collected and the staff that participated in the study was interviewed. Twenty-six students, (about a quarter of all the students served during the test period), took the time to complete the survey. Eighteen out of twenty-six students found the new system useful but the staff interviews revealed that some parts of the system were not successful in their perspective. We attended to a full staff meeting; the staff was asked to reflect back about what they thought was working and what was not working in the redesigned process. They were also asked to express if they perceived any difference in their individual processes. The test materials and associated processes were simplified based on the feedback collected both by the students and staff. In the new version some of the pathways were combined to make the overall process simpler. This revised process and associated materials were tested in the clinic for one more week.

Hours of operation and approximate waiting times to Talk to a Nurse or Schedule an Urgent Appointment

	Monday	Tuesday	Wednesday	Thursday	Friday
8am	medium wait				
9am					
10am		medium wait		medium wait	medium wait
11am					
12pm					
1pm	longer wait		longer wait		
2pm		longer wait			longer wait
3pm	long wait	long wait	long wait	medium wait	
4pm					
5pm	medium wait	medium wait			
6pm					
7pm					

At Student Health Services we are testing a new system to decrease your wait time for our services. Please let us know if you like it by completing the mini survey attached to the different service forms



2.4.1.1 Second Iteration

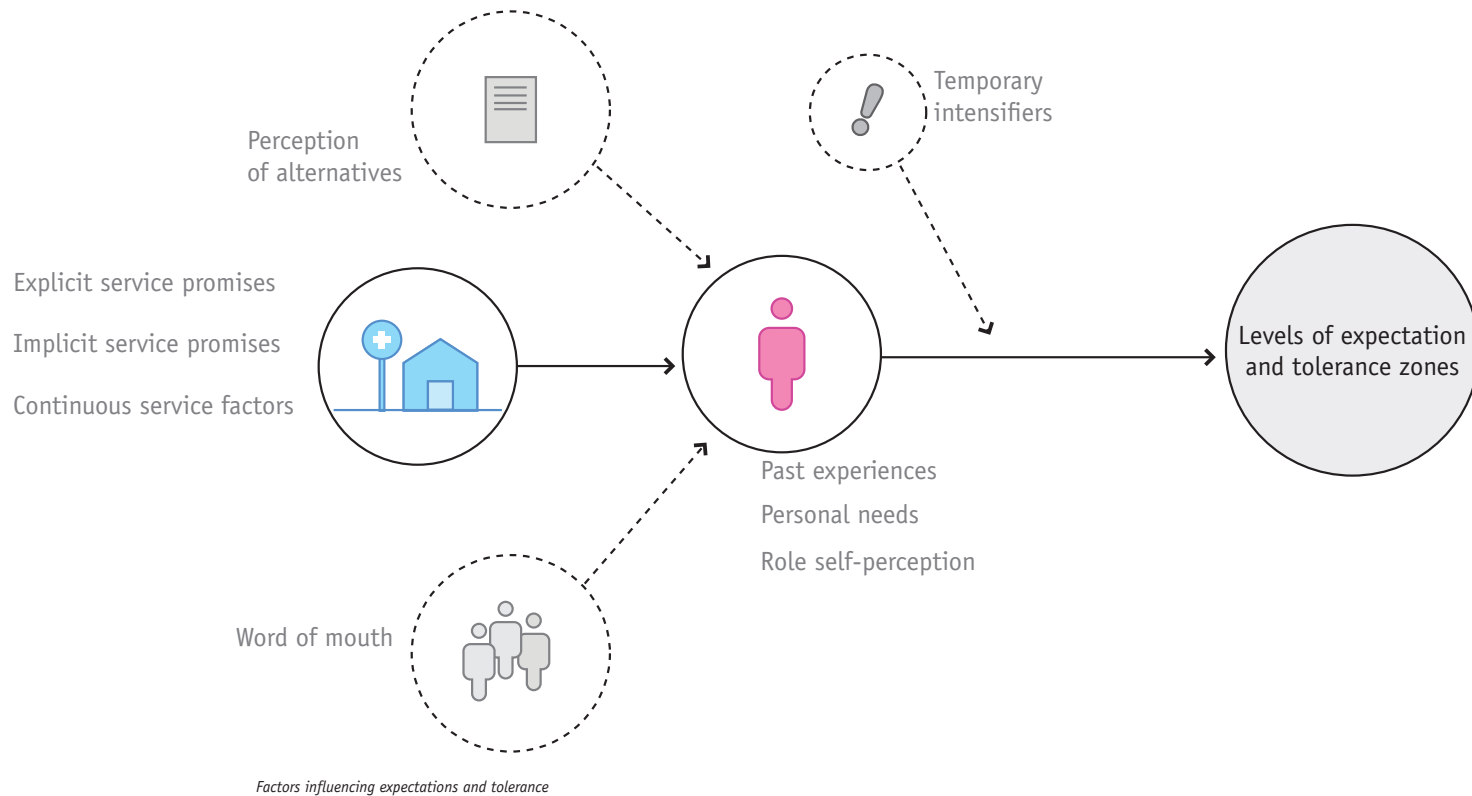
During the second testing, six surveys were collected and the A&A staff was interviewed again. This second iteration performed better and some parts of the redesign were so popular among the staff that when the testing was over, these parts were merged with the previous processes and adopted immediately.



3. Project Release

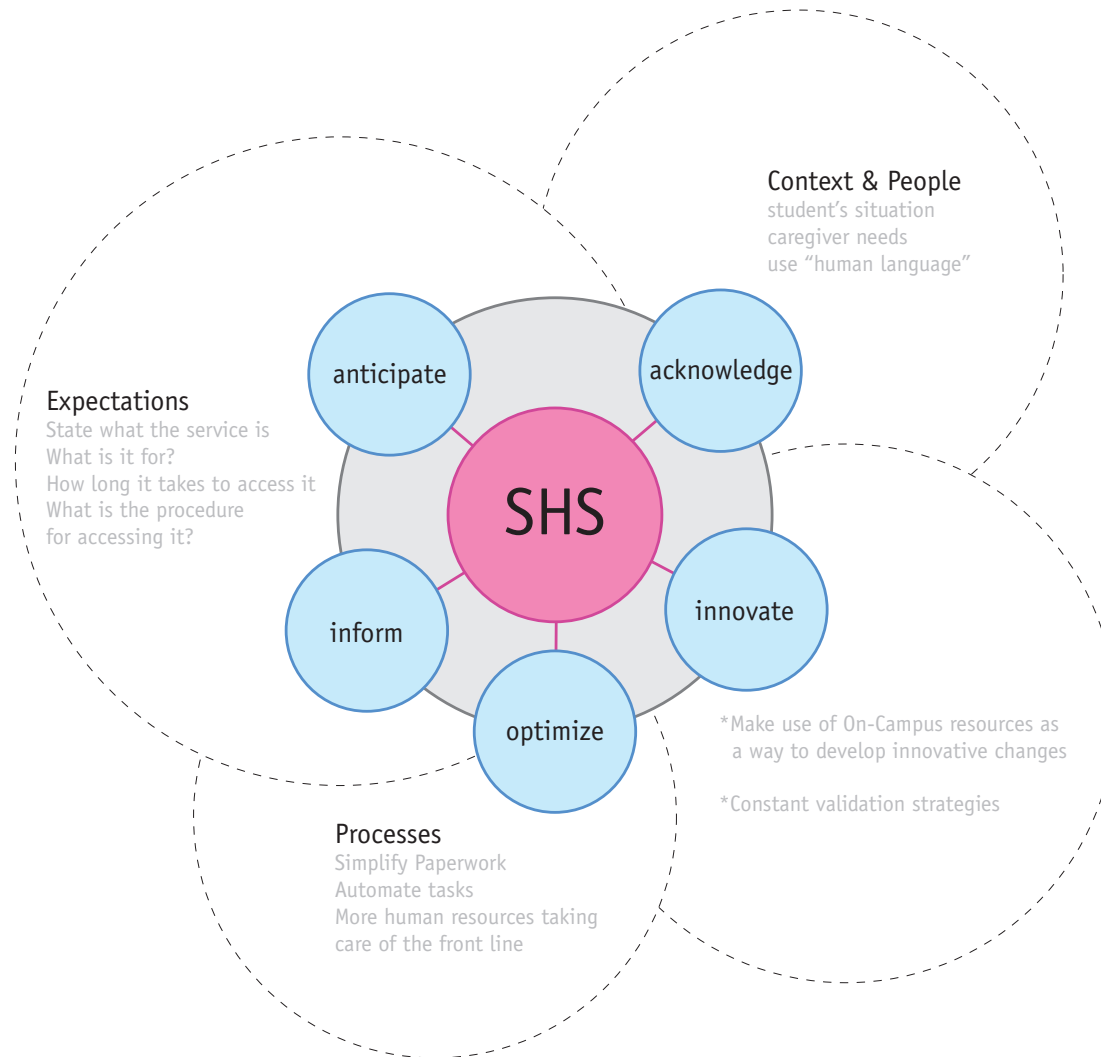
3.1 Design Overview

The perception of any service is deeply linked to the expectations about it. This project allowed us to more accurately understand and manage student’s and caregiver’s expectations. We have learned that by making visible the invisible through service & process transparency designed interventions can positively affect expectations around the SHS service.



SHS Action Principles

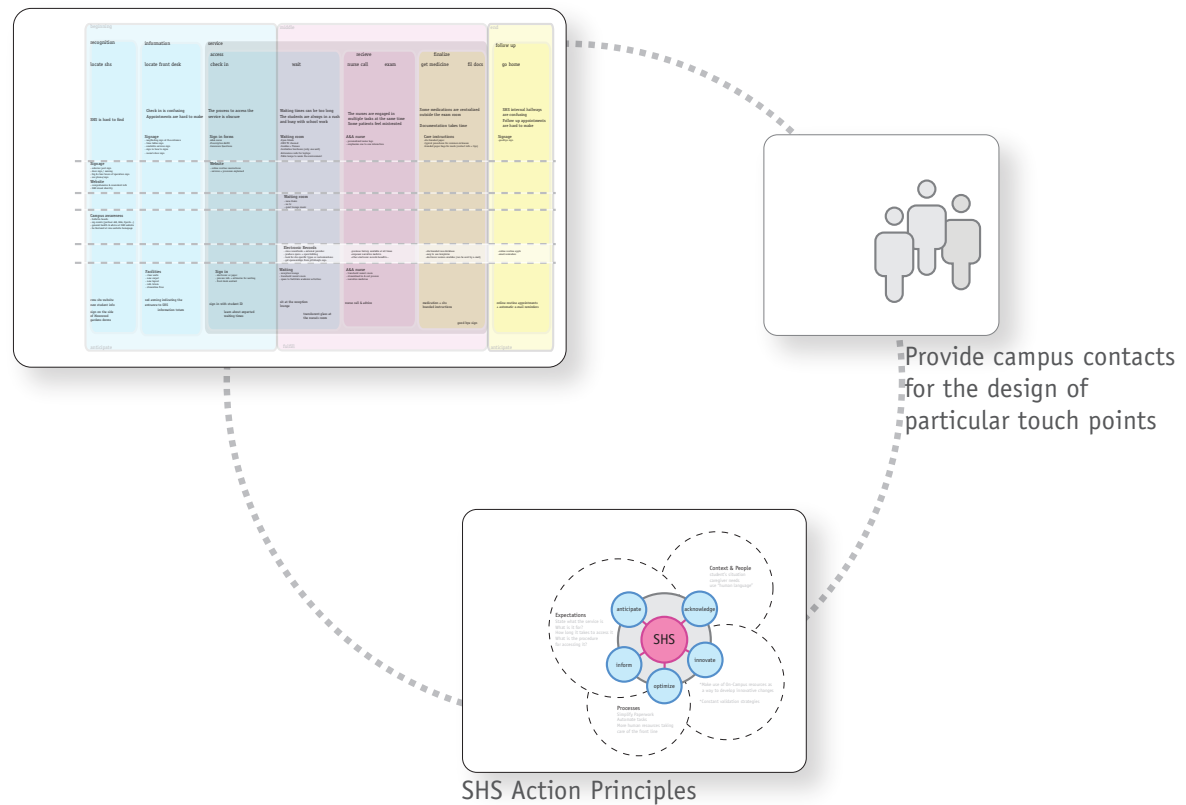
To guide the design and implementation of service practices at the SHS clinic, a series of action principles were developed. These action principles provide a way to address innovation and quality assurance issues inside the clinic.



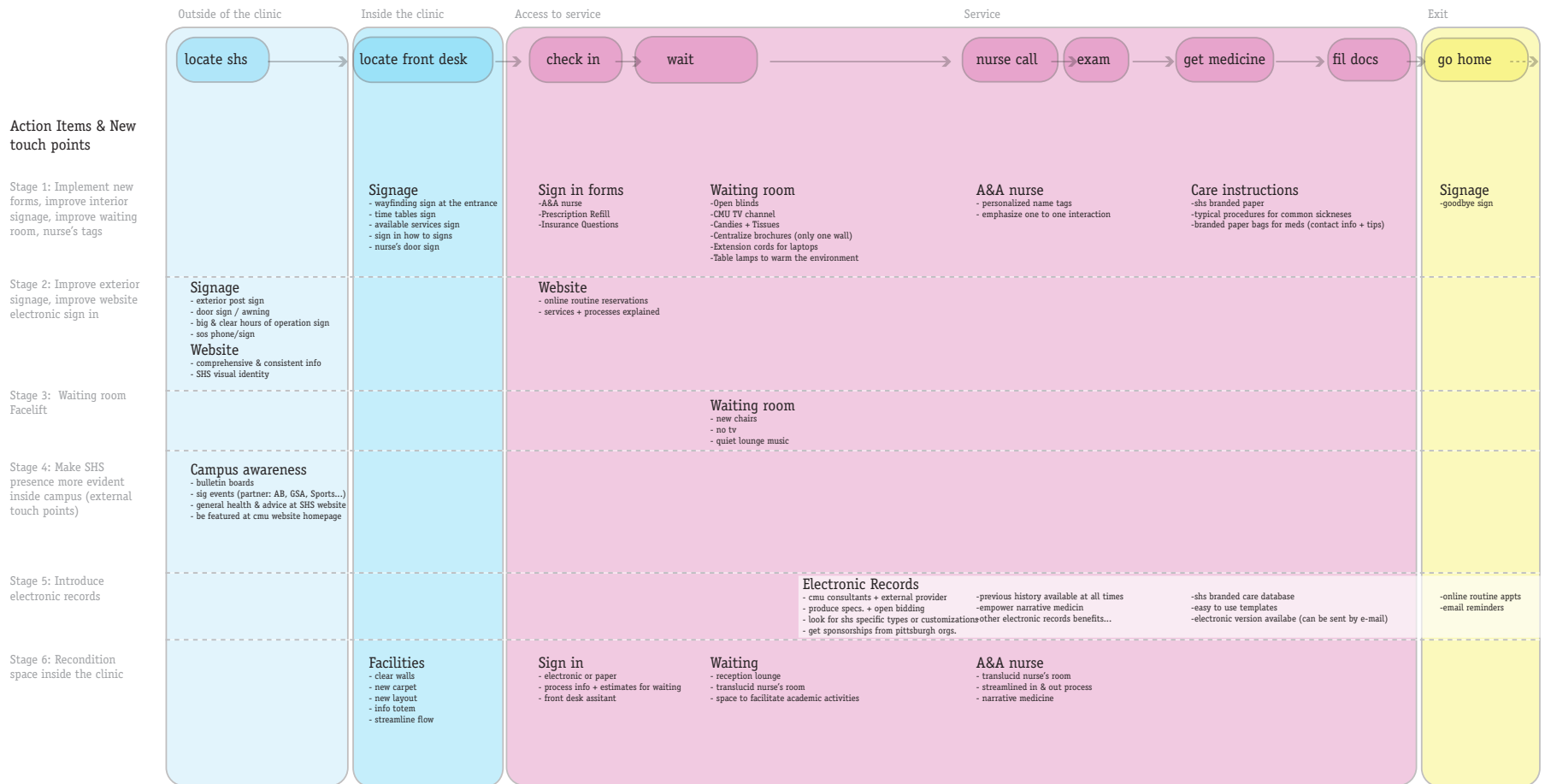
3.2 Design details – Plan of Action

Based on the testing results, a set of design implications was developed. These implications included not only a list of improvements to develop but also a detailed specification on how these improvements should be performed. The specification provides theoretical tools to approach the improvements but also a step-by-step program that can be implemented over time as the financial resources become available to the clinic management. This plan of action is meant to be combined with the SHS action principles as well as a series of academic contacts inside Carnegie Mellon.

Scaffold improvements - Plan of Action



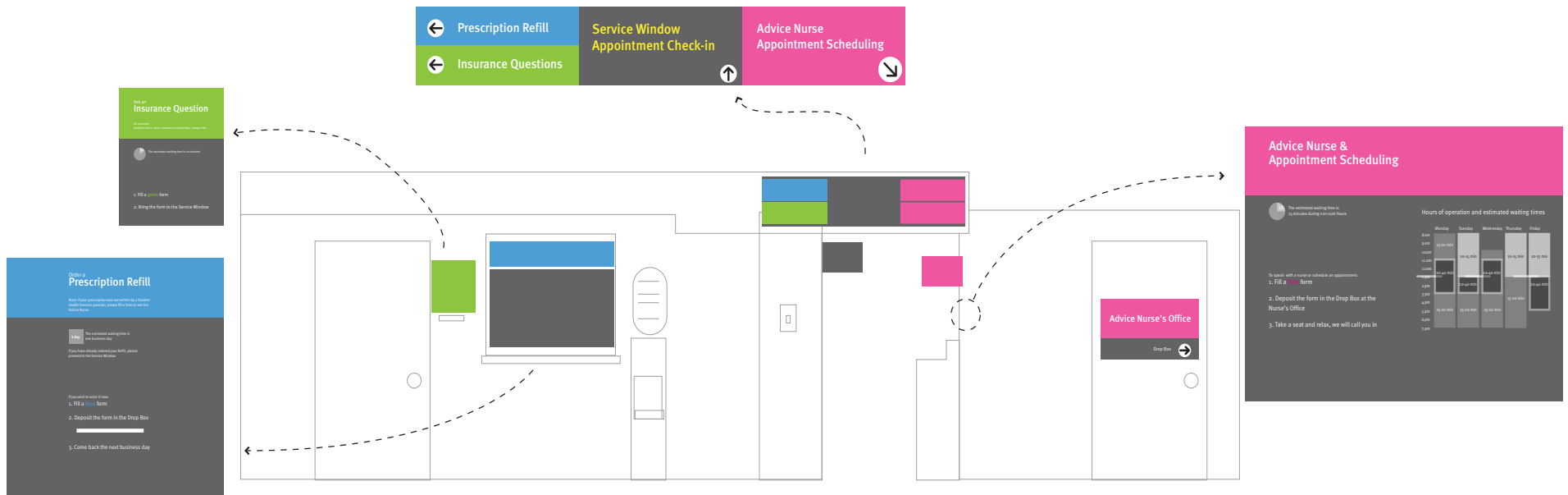
SHS Plan of Action



Plan of action - Reduced version

3.2.1 Phase 1

Stage 1: Implement new forms, improve interior signage



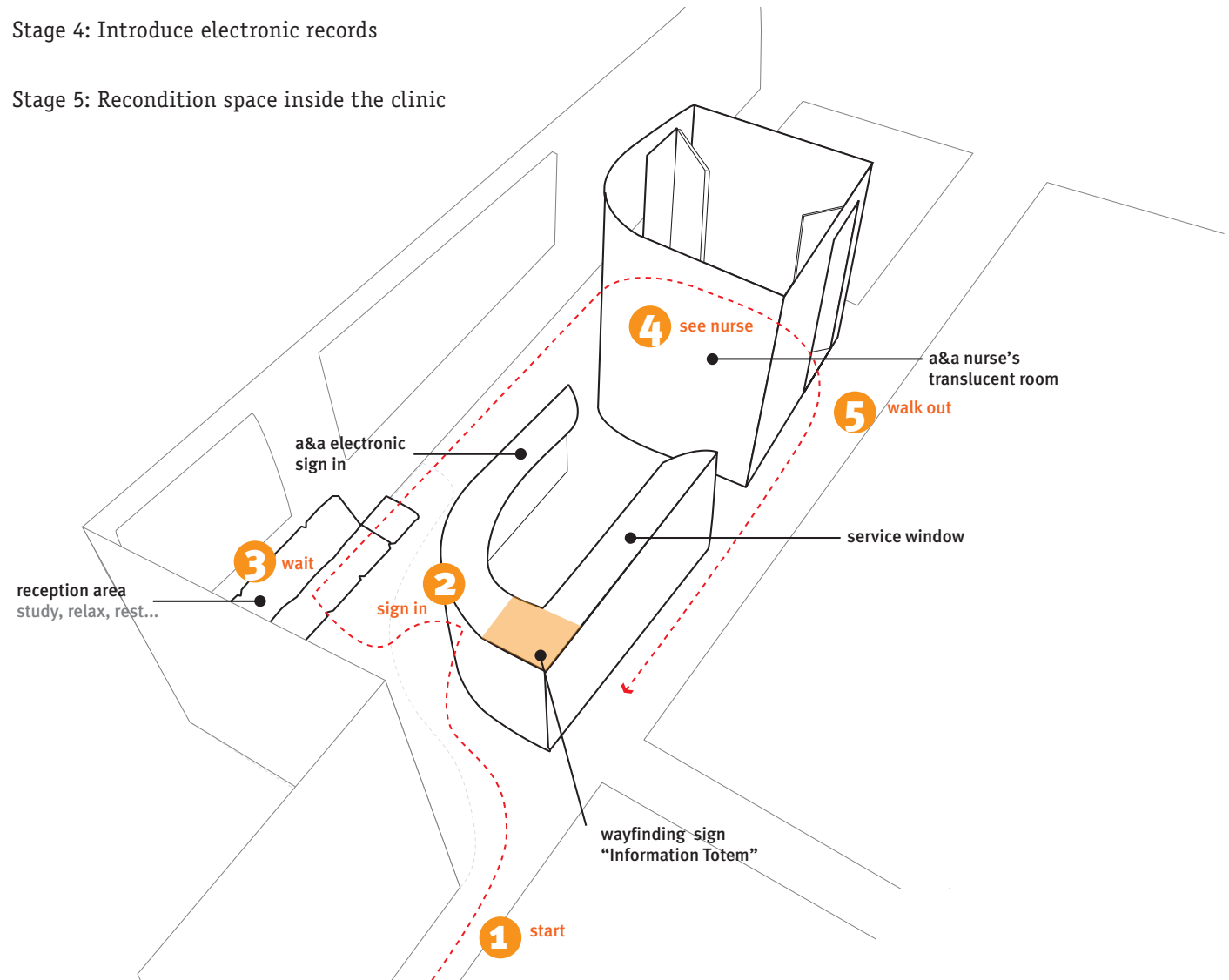
Stage 2: Improve exterior signage, improve website

Stage 3: Make SHS presence more evident inside campus (external touch points)

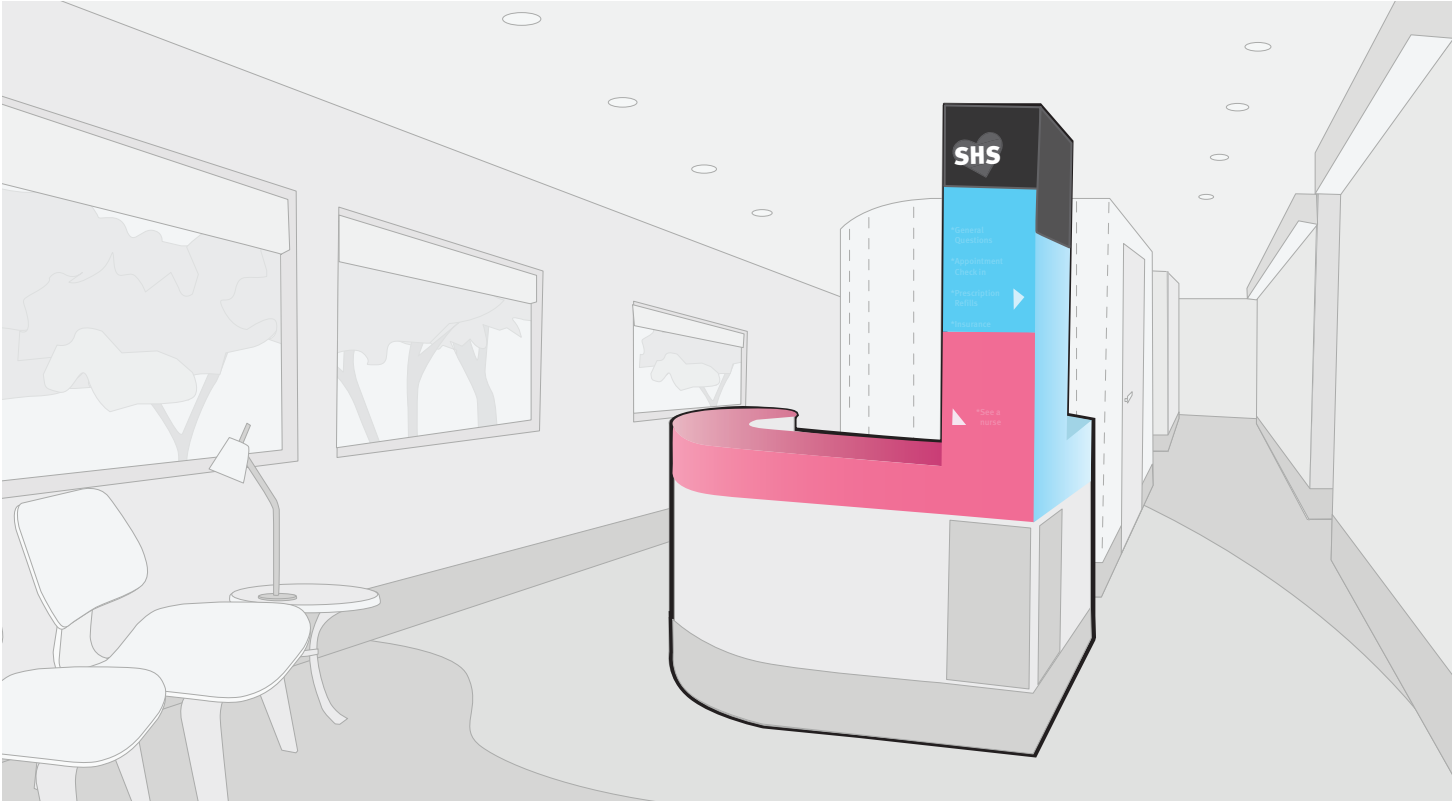
3.2.2 Phase 2

Stage 4: Introduce electronic records

Stage 5: Recondition space inside the clinic



Future vision of the SHS layout



Future vision of the SHS layout

3.2.3 Academic contacts for realization

Dan Boyarski

Professor and Head of the School of Design

dan+@andrew.cmu.edu

3.3 Scenario of use

Jane is a CMU undergrad from Seattle. It's her first year away from home - and her first experience with allergies.

She thought it was a cold, but after a week, the symptoms still aren't getting any better.

Jane tries to make it through the day, but after two classes she decides to get help.



Jane knows where to go because she sees the Student Health Services sign on the Forbes Avenue side of Morewood Gardens every day on her way to class.

She decides to go over to see what they can do for her



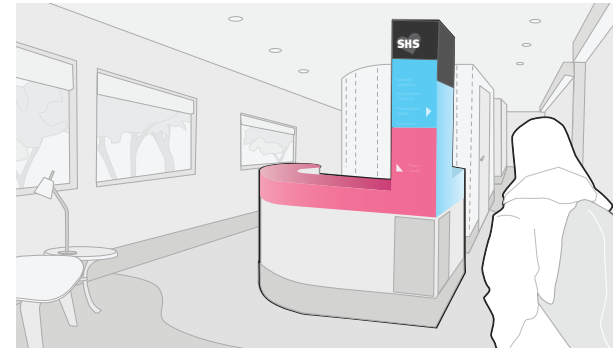
When she gets closer to Morewood Gardens, she notices a red awning and signs indicating the entrance to Student Health Services.

Achoo!



Jane enters the light-filled clinic and is comforted by its soothing atmosphere. Music plays softly and she takes a candy from the dish.

Her attention is drawn to the information totem, which shows her how to access SHS services



Jane decides to access the walk-in service, so she swipes her student ID and selects options on an ATM-style touch-screen. The computer summarizes the process so she knows what to expect, and then estimates her waiting time.

As Jane signs up, the front desk attendant says hello and checks to make sure she is OK.



While she waits for the Advice & Appointment Nurse, Jane checks her email from her laptop and hums to the music.



Jane can see through the translucent glass of the A&A Nurse's office that another student is being cared for, and since there are not many other people in the waiting area, she is confident that it won't be long before her turn.



After 15 minutes, the nurse comes to the waiting area and leads Jane to her office. In the office, the A&A Nurse greets Jane and listens to her story.
Achoo!

The Nurse assesses Jane's symptoms, gets a prescription, and recommends that Jane attend an upcoming Allergy Clinic at Student Health Services.



Jane thanks the Nurse and leaves through the office door that opens directly to the hallway of the clinic.

Jane sees an SHS 'Good-bye' sign as she makes her way to the exit.



Once she is settled at home, Jane checks her calendar and decides to attend the SHS Allergy Clinic.

She goes to the SHS website, logs on, and schedules her appointment



Jane has never had to make her own way through a clinical environment before, so she is happy to have found the process so friendly and accessible; she's confident she will be able to do it again without any problem.

Her allergies are relieved and she goes to bed to get the best rest she's had in a long time.



4. Acknowledgments

Shelley Evenson, Associate Professor and Director of Graduate Studies, School of Design, CMU

Anita Barkin, Director of the SHS

Geri Liersaph, Assistant Manager at SHS

SHS Staff

Super Healthy Team

Kinematrix Research Network

Alexandra Woolsey-Puffer

PenFan Sun

Jeffrey Wong

Leonardo Reyes Gonzalez

Apendix A – Plan of Action

Apendix B – Final Project presentation

Apendix C – Moment FlipBooks

Apendix D – Personalized SHS diagram

Design & Personalization principles