

MEX Experience Boards: A Set of Agile Tools for User Experience Design

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ABSTRACT

This paper proposes the MEX Experience Boards, a set of agile modeling tools created to identify and/or design important aspects of User Experience (UX) in an interactive product. Grounded on MEX - Generic User Experience Model, it can be easily used in conjunction with other UX/Agile approaches, such as *user roles*, *personas* and *task flows*. Experiments so far suggest that its main advantages are flexibility, collaboration support (participatory design enabler), ease of use and capability of discover hidden user experience issues.

Keywords

H.5.2User interfaces: Interaction Design, Agile, MEX.

INTRODUCTION

UX professionals are facing significant challenges and opportunities with the rise of Agile Methods. The pressure for simpler and affordable techniques comes with an increasing necessity for more engaging user experiences.

Addressing this question, this paper suggests two imagination-based tools for user experience agile modeling: *Experience Summary Board* and *Experience Flow Board*. Using MEX [1] as a supporting theory, these tools relies on flexibility, ease of use and collaboration to insert UX vision in the product development process. Schemes and examples are shown in the next sections, followed by the first results in an Information Technology R&D company.

AGILE METHODS AND USER EXPERIENCE

Agile Methods, like Extreme Programming and Scrum, are processes that support agile philosophy [2]. They emerged in 1990's as effective alternatives to waterfall development methods, focusing in four principles [3]: 1) individuals and interactions over processes and tools; 2) working software over comprehensive documentation; 3) customer collaboration over contract negotiation; and 4) responding to change over following a plan.

Depending on how they are applied, Agile Methods can

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enhance or threaten user experience quality [4]. If applied as a programming methodology, focusing primarily in coding issues, these methods tends to put aside important activities such as (basic) user research. But in other hand, if applied as a system development methodology, considering team roles and activities related to UX, Agile offers many opportunities for overcoming problems with traditional development methods that have long impeded usability [4] (for instance, the idea that UX approaches are expensive).

In this way, to fit in the light-weight mindset of Agile Methods, it is recommended to UX professionals to use simpler tools and techniques, focusing more in understanding than documenting, and supporting rapid input and change [5]. In other words: 1) to invest in more simple, fast-making artifacts; 2) to intensively use visual language for fast assimilation and 3) to allow team and stakeholders collaboration (participatory design).

MEX

The Generic User Experience Model or just MEX [1] is a way to understand experiences through the relationship between 6 elements, or variables: *Individual*, *Artifacts*, *Interaction*, *Context*, *Activities* and *Momentum*.

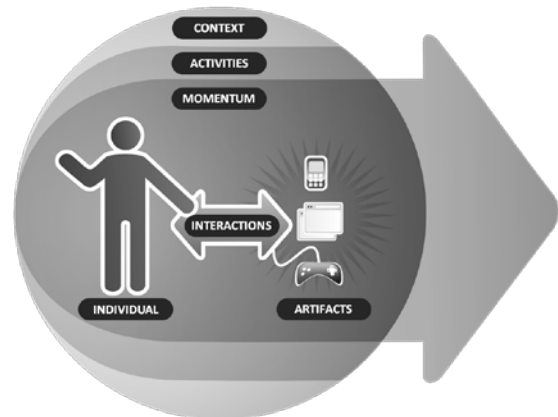


Figure 1: MEX Diagram

Individual

It is all the user related points that influence the experience, such as psychological profile, level of familiarity with technology, emotions during the event, etc.

Artifacts

The object(s) an individual interacts during an experience, including (mainly) the product being developed.

Interaction

It's the type of interaction between individual and artifacts and among artifacts itself. Here are also analyzed what human senses are involved (seeing, hearing, touching, etc).

Context

All the important details about the situation and environment the experience are taking place and how they affect it.

Activities

It is related to objectives the individual has before and during the experience, as well as the tasks he/she performs to achieve them.

Momentum

It is about how the time and the dynamics of the events affect all other elements, cited above. In other words, how they can change as the experience happens. There are 4 stages in any well succeeded experience [1]:

1. Start or Attraction motivated by any stimuli, when the individual is "setting up" the further actions;
2. Development or Engagement, when the individual gets involved in the main activity. Sometimes may occurs *Flow*, the mental state of operation in which a person in an activity is fully immersed in a feeling of energized focus, full involvement, and success in the process of the activity [1];
3. Finish or Closure, when it's clear to individual that the experience is finished;
4. Extension, a possible step related to the finished one that leads to another experience.

Despite the fact these are well integrated variables, there are only two elements that can be really designed: *artifacts* and *interactions*. All the rest can highly affect the experience, but cannot be fully mastered by designers; only understood and controlled at certain levels. Other point is that the importance of a given element may vary according the nature of the experience (gaming, web navigation, etc).

The MEX idea is useful in the early stages of interactive products development, especially those that relies on complex experiences (multimodal, cross-media, etc). For these kinds of products, any detail can make the difference, so it is important to invest a little additional time identifying and/or designing key aspects of the user experience.

THE MEX EXPERIENCE BOARDS

The MEX Experience Boards are customizations and grouping of existing techniques (task analysis, personas, etc) and blueprints that address two points: 1) to reinforce the presence of a UX vision in the agile product development process through light-weight tools, and 2) to create a practical application of MEX concepts.

The core idea behind the tools is to freely organize the user experience aspects (MEX elements) according the analysis needs of development projects. In this paper are presented two examples: *Experience Summary Board* (intended to identify user experience requirements in early phases of the project) and *Experience Flow Board* (created to design experience flows).

As imaginative tools (brainstorming based) they can be used with any approach, agile (see figure 2) or traditional.

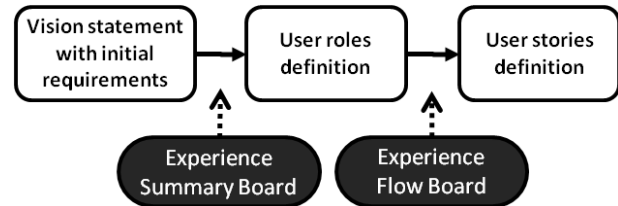


Figure 2: MEX Experience Boards in initial requirements phase of typical agile projects [7]

I. Experience Summary Board

This tool consists in a board that details all MEX elements in a logical sequence. It can be used in the early product conception phase (after project vision definition) and provides insights to requirements definition, focusing in the overall user experience (i.e: buy a book on-line). Two well-know techniques are also used: *Personas* and *Scenarios*. As its name suggests, it summarizes the agile user experience analysis in just one place.

To exemplify the Experience Summary Board, it will be used a fictional and simple mobile banking application (low level of details due space restrictions in this paper).

Individual User profiles or user roles. <ul style="list-style-type: none">• <i>Light user, Power user</i> Personas (optional, but recommended to main user profiles) <ul style="list-style-type: none">• <i>Light user: Carl, 43, drugstore supervisor. Not much tech-savvy.</i>• <i>Power user: Mario, 28, programmer. Loves his iPhone.</i>
Activities Main user objectives and goals <ul style="list-style-type: none">• <i>Carl: easily get basic info about his bank account.</i>• <i>Mario: Save time to spend with friends and freelances.</i> Main user tasks (sketches) <ul style="list-style-type: none">• <i>Carl: check balances, view bank messages</i>• <i>Mario: make full transactions, like payments, investments and money transfers.</i>
Contexts Scenarios (related to user profiles or personas above) <ul style="list-style-type: none">• <i>It's June 1st. and Carl arrives at work checking in his cell phone if his salary is already in account.</i>• <i>During a friendly talk in Moe's Bar, Mario remembers that didn't pay the cable TV bill. As he's not willing to miss the football finals when arrives at home, he suddenly takes his phone and quickly pays the bill.</i>

<p>Environments descriptions</p> <ul style="list-style-type: none"> At home (comfortable and secure), at work (stressful), at bar (low luminance, insecure) and so on.
<p>Artifacts</p> <p>List of objects that influences the experience</p> <ul style="list-style-type: none"> Cell phone, smart phone <p>Its usability, aesthetics and functional aspects worth mentioning.</p> <ul style="list-style-type: none"> Cell phone: low capabilities (processor, memory, screen size, internet via WAP) and poor native usability. Mainly used to make calls. Smart phone: high hardware capabilities, high usability, many features. Positive emotional reactions on its owner.
<p>Interactions</p> <p>Notes regarding which and how the senses are used</p> <ul style="list-style-type: none"> Cell phone: visual (poor to medium) and tactile, pressing real buttons. Smart phone: visual and tactile, with touch screen (no real buttons), soft animations, and high impact graphics. <p>Interactions between artifacts (inputs, outputs, interferences)</p> <ul style="list-style-type: none"> Incoming calls and messages may occur during application usage; The device may fall from user's hand;
<p>Momentum</p> <p>Key points of main experience (start, development, end and extension) worth mentioning</p> <ul style="list-style-type: none"> Carl: Commonly starts with an very specific necessity regarding some lack of information. Short duration event. Mario: May start anywhere, even not secure or appropriate. Easily can get distracted, due the potentially immersive characteristic of the experience. <p>Possibilities to individuals achieve Flow, and what leads to it</p> <ul style="list-style-type: none"> Carl: Due poor stimuli and attractiveness of the experience, probably won't achieve Flow. Mario: due potentially rich experience, it is possible to achieve Flow.

Figure 3: Experience Summary Board example

Inputs

Project vision and business goals (to tailor the experiences covered by this analysis) and minimum user research information (demographics, psychographics, user objectives etc). Without this, the analysis may become meaningless;

Outputs

User modeling information (user roles, personas) and high level user stories (epics) or functional / non-functional user experience requirements.

How to use

Collaboratively, in a brainstorm section (using whiteboard, sticky notes, markers and a digital camera to store and share the work) or individually, using text editors or spreadsheets.

Advantages

1) It allows a quick high level analysis of the overall user experience; 2) It applies various techniques at once, in the same board (user roles definition [7], personas, scenarios, etc) thus making its application faster, as agile methods

advocate; 3) it can be easily transformed in a deliverable, if the project needs.

Issues

It doesn't show the elements variations analysis during the experience phases (momentum). Other point is that in some cases, the individuals are so different (needs, role in the system, etc) and numerous that is unfeasible to maintain a unique board to analyze the experience. In these cases, a good idea is to split the board by individual (columns) or create a new board to each one.

II. Experience Flow Board

The second tool is intended to discover or design interaction flows, crucial to design system's behavior. It consists in a simple task flow analysis inside a swim lane board. In each lane there is an experience stage that refers to the MEX element momentum (start, development, finish and extension). This is the major advantage of this technique, because teams commonly tend to focus on the engagement steps (development stage) of the experience, sometimes overlooking important entry, exit and extension points, missing some steps. By visually "forcing" the team to think beyond the development stage, this board allows the complete experience analysis.

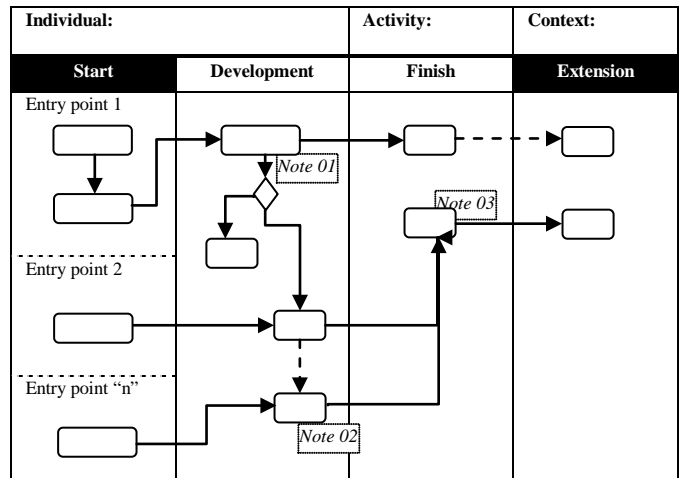


Figure 4: Experience Flow Board scheme (the highlights in first and last boxes are just emphasis for this paper)

Components

Individual: User role(s) or persona(s) that performs the analyzed activity. I.e.: Carl and Mario (previously created)

Activity: The set of correlated tasks that allows the individual to accomplish his/her goals. I.e.: view balance (Carl) or make an investment (Mario).

Context: The situations and environment conditions that the experience may occur. It can be a scenario or just a list of situations. I.e.: At work (Carl) or at bar (Mario).

Start stage: The ways the experience begin, including the user decision process that leads to action.

Development stage: The main steps of the experience. It is here where user can really get involved.

Finish stage: The ways the experience clearly end.

Extension stage: The optional actions that extends the experience, or starts a new one.

Notes: Mentions to *artifacts* and *interactions* that help the team understands the flow and designs the solution.

Inputs

High levels activities defined for each individual (user profile or persona).

Outputs

Interaction flows and insights to create and refine *user stories* or *functional* and *non-functional requirements*.

How to use

Collaboratively, in a brainstorm section (using whiteboard, sticky notes, markers and a digital camera to store and share the work) or individually, using text editors or spreadsheets.

Advantages

By giving importance to start, finish and extension points, it allows a complete user experience flow analysis. It also can be easily integrated with well-known techniques like user *profiles*, *personas* and *scenarios*. A potential example can be the Experience Flow Board used in conjunction with *MoLIC* [7] diagrams, as both rely on similar task flows.

Issues

By making the task flow more detailed, the final chart may become complex in some cases. So, it is recommended to use full-size whiteboards and multi-colored markers.

FIRST CASE STUDIES AND EARLY RESULTS

At the moment of this paper's writing, the MEX Experience Boards are being used in some software projects of a Brazilian Information Technology R&D company to clients of the high technology industry and in a University CHI laboratory.

In the R&D company, the Experience Flow Board have being used to design the interaction flows of a cross-media, multimodal application. The Experience Summary Board, an older tool, has been used in five projects. All the cases of both tools had the participation of requirements analysts and interaction designers, and, in some cases, developers.

Compared to traditional approaches (*requirements workshops*, for instance), the main (qualitative) results perceived were:

More team acquaintance about user experience

Supported by a visual and ease to use tool, the team members felt invited to discuss the points addressed in the board; making more improvements along the way;

More user experience requirements gathered

The in-depth discussions naturally generated more requirements regarding user experience, balancing them with business requirements.

Although these tools are imagination based (what makes them cheaper), practical application suggested that is important to do basic/minimum *user research* (questionnaires, secondary data gathering, etc) before using the boards, in order to achieve more consistent results.

Team buying

Due the collaborative dynamics of this approach, team members rapidly got involved in the process, creating an understanding about the effectiveness of the tool.

CONCLUSIONS AND FUTURE WORK

As seen on this work, the MEX Experience Boards are flexible and light-weight tools that fit well in Agile Methods and work with existing UX techniques (such as *User profiles*, *Personas*, and *Task Flows*). Flexibility, collaboration (participatory design), ease of use and capability of discover hidden issues are enabled due their simplicity and visual approach.

In this way, is correct to say that their main benefit is the reinforcement of the connection between UX and agile approaches, trying to get the better of the two worlds.

There are other similar tools under development based on the same logic (MEX concepts and agile principles) in the University and the R&D Company cited. Future work consists in create more tools, merging them with existing ones and mature them in several types of projects.

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