

**DG MACK**



## **Test Plan: User Experience Research for edX**

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### **Date**

February 28, 2017

## About DG MACK

DG MACK is a usability testing consulting company based across the United States. All six principals at the firm are enrolled in the Human Factors in Information Design Masters Program at Bentley University, a top user experience design program in the country. The project will be managed and implemented by these six experts as described below. All team members will be participating in the expert review, moderating usability test sessions, as well as contributing to the deliverables.

**Michael Andryauskas** is a full time student at Bentley University. Previously, he worked at Muzzy Lane Software, an educational video game company, for 3 years as the User Interface Designer, Artist, and Programmer.

**Andrea Cantú** is a user experience consultant who helps companies align their business goals with their users needs, taking into consideration the scope and resources available to design or redesign a digital product. Formerly at Oracle and now as independent, for the last 7 years, she has been assisting design and development teams with research, usability testing, interaction design, and information architecture.

**Corey Comenitz** is a Research Associate at the Bentley User Experience Center. Prior to joining the UXC, Corey worked as a Human Factors Specialist at UL-Wiklund, a consulting firm, where he supported formative and summative usability studies on a variety of medical devices, websites, and smartphone applications. Corey has also contracted with BBK Worldwide, where he helped develop an incentive program aimed to further engage patients and doctors in clinical drug trials. Corey attained his Bachelors of Fine Arts in Industrial Design from the Rhode Island School of Design (RISD).

**Kristina Eastham** is a user experience consultant with 10 years of experience in storytelling, digital experience strategy and user research. She's currently a user experience strategist at Konrad + King, a consulting agency in San Diego. She's also the organizer of Ignite San Diego, a hyper-local lightning talk event.

**Deb Ercolini** is a software engineer with The MITRE Corporation and has 20+ years of experience in all aspects of software development including requirements gathering, design, implementation, testing, deployment and management. Her field of expertise is collaboration systems.

**Grace Phang** is a usability researcher. She developed and manages the website for a small fashion company she co-founded. Previously, she used her neuroscience and anthropology background in her role as project coordinator for a startup that developed educational products intended to improve spatial cognition.

## Problem Statement

edX is a non-profit that brings open-sourced Massive Open Online Courses (MOOC) to new learners around the world. edX's goal is to bring high-quality education to "1 Billion" learners. edX has engaged DG MACK to develop and conduct usability testing to identify and understand first-time user pain points so that in the future they can ensure that their onboarding process for new learners is simple, painless and clearly communicates the benefits of the free platform.

Through previous research and institutional knowledge, edX understands that new learners make many crucial decisions about how and why to use the edX platform during the first hour of use. However, they want a better understanding of why this first hour—and even first 15 minutes—is so crucial. What about this "first hour" experience determines whether or not first-time users will return to the site?

In order to support edX in a better understanding of roadblocks and impediments during new learners' first hour, DG MACK will assist the edX User Experience team by conducting a series of individual usability testing sessions. DG MACK will facilitate the sessions, analyze the results and provide a complete report with insights and recommendations to be used by edX's product teams.

Before the individual usability testing sessions, DG MACK will conduct an expert review, which will be used to refine the tasks to be designed for the usability testing sessions. DG MACK will present the consolidated findings to edX.

## Expert Review Plans

DG MACK's consulting team brings "fresh eyes" to the edX.org experience. In addition to our expertise in usability and identifying problems, DG MACK is unbiased by insider or institutional knowledge of edX. By conducting a preliminary expert review, our team will identify potential pain points for new visitors that will be verified during a series of usability tests.

Our usability team will analyze the client's website and determine what is potentially causing problems for new users. Using our collective knowledge of usability standards and principles, we will give each potential usability problem a rating and explain the factors in each problem. Ratings will be based on Nielsen's Severity Rating Scale listed below:

### Nielsen Severity Rating Scale

- 1 = Cosmetic problem only: need not be fixed unless extra time is available on project
- 2 = Minor usability problem: fixing this should be given low priority
- 3 = Major usability problem: important to fix, so should be given high priority
- 4 = Usability catastrophe: imperative to fix this before product can be released

DG MACK will provide recommendations on the urgency with which each usability problem should be addressed, including those that should be fixed immediately and those that are worth taking into consideration on future updates or redesigns of the site. In addition, DG MACK will provide possible solutions to identified usability problems.

We will also present outstanding features of the client website, allowing the client understand what parts of the website excel and should not be changed. By identifying the best aspects of the website, DG MACK will also look at how those successful or well-done attributes can be applied in other places or user flows.

## **The Review Process**

Prior to the development of this Test Plan, each DG MACK team member conducted individual Expert Reviews and evaluated the pain points of the website from the perspective of a first-time user.

Next, individual findings will be consolidated and DG MACK team members will revisit the entire list of usability problems and apply Nielsen's Severity Scale to rate each problem and determine the final score for each usability problem.

Findings will be recorded to a spreadsheet, which will track:

- Problem Description
- Severity rating
- Violations of Nielsen's Usability Heuristics
- Location of issue (URL)
- Screenshot of the issue (if applicable)
- Any recommendations to solve the issue

If more than half of the team found the same usability problem, the team's severity scores are averaged to calculate the final severity rating. If only one or two members of the team discover a usability problem, the entire team will give their own severity rating for the usability problem, and their scores (with 0 being an acceptable score) are averaged to determine the final severity rating.

After the final severity ratings have been assigned, we will sort the usability problems by their finalized severity ratings to determine the biggest issues pertaining to the website's

usability.

A final presentation will include:

- Goals of website testing
- Usability problems discovered during our expert review
- Usability features that are beneficial to the user
- What features and tasks that require further testing
- Recommendations to improve the website for future users

A digital copy of our collective Expert Review will be provided to the client.

## Goals for the Usability Test

The goal of this study is to understand new users' initial interactions with edx.org and the on-boarding process for registering, selecting and and taking a first course. The goal of this study is to understand the decision-making first-time edx.org users go through when interacting with the site and identify obstacles or challenges they face during first-time use.

This study will answer the following questions:

- **Expectations vs. Reality:** What are users' expectations for their edX experience? How does the current edX experience fall short or misalign with these expectations?
- **Step-by-Step Process:** What obstacles do new users experience during each step of the first-time edX use process? Where do users experience friction when registering for edX, searching for and selecting a course, registering for a course and beginning the course?
  - **Reasons for Attrition:** At which points in the onboarding process do users falter or hit resistance? What causes them to abandon edX during first-time use?
- **Course Logistics & Format:** How do first-time users determine the course process and logistics for edX courses? Does the process and format meet their expectations? If not, why? What opportunities are there to help first-time users better understand the edX experience and process?

## Special Concerns

We acknowledge that edX has an incredibly broad user base and that theoretically “edX is for everyone.” This includes different demographics that we do not have easy access to based on the research budget, including International and non-English speaking users. While we understand that the users we test could have different expectations and

behaviors than the broad edX users, we the goal of this study is to identify drop-off behaviors and causes for domestic, English-speaking users first and help edX build hypotheses that can be tested against some of their different users bases in the future.

## Participants

### Participants:

This study will test participants who are looking to advance their careers through acquiring new skills, meeting the “Advancing Professional” persona laid out below. Participants should be people actively seeking new skill development specifically for the purpose of obtaining a new position or advancing within an existing position or company. Participants should have a clear idea of what types of classes or skills they’re interested in before joining edX.

DG MACK is will find participants matching the following description:

- Working professionals seeking advancement in a current or new role; or unemployed/under-employed professionals seeking new professional skills to aid them in finding a new job
- Located in the US
- Interested in advancing their career by learning new skills
- Possibly interested in certification programs for very specific skills or classes
- Has a timeline or clear goal associated with edX use
- English-speaking
- Age range - 25 - 55
- Tech requirements: Desktop access

Participants must have Internet access and a desktop or laptop computer with videoconferencing capabilities. Participants will have no previous experience with edX. Participants will have a mix of no experience and some experience with other online learning tools such as Lynda.com, YouTube, and Coursera.

### Recruitment plan:

DG MACK will recruit 14 participants and run 12 sessions. We will over-recruit to compensate for any cancellations or no-shows. Recruiting will be done through a friends and family recruit using a screener survey that will be shared by DG MACK team via email and social media. The screener is located in the appendix of this Test Plan.

Participants will be compensated with a coupon for a free “Verified Certificate” from one of the edX classes (a \$49-99 value). This certificate will be emailed to participants after testing is completed.

## Tasks

The following tasks will be used for the test and include either common or required of first-time users as they determine what edx.org is, how they might use it, and how they go through the process of taking a course. **For a full description of tasks and questions, please see the Moderator's Guide in the appendix.**

### Task 1 - Homepage Review

**Goal:** *Task 1 is designed to understand users' first impressions of edx.org and how they interact with content. Does the homepage put forth the best information to help new users understand what edx is all about and how to get started?*

Task 1 instructs users to examine and interact with the homepage to determine their impressions of edx.org, including the purpose of the site, different activities users can accomplish, what information is missing or unnecessary, and common possible paths from the homepage, based on user goals.

### Task 2 - Find a Course

**Goal:** *Task 2 is designed to uncover users' preferred methods for finding a course that meets their needs, including browsing, searching and search result refinement tendencies.*

Task 2 will examine how first-time users explore edx's course offerings and make decisions about course by instructing users to locate a beginner course in accounting that they can complete within the next two months. The goal of Task 2 is to understand how users narrow down and select a course from the more than 1,000 courses and programs offered by edx. We also want to examine the decision-making process to understand user priorities and how they settle on the "right" course for them. In addition, we are examining whether or not the course format and experience meets users' initial expectations and if not, where do inconsistencies impact their decisions to continue to use edx.org.

### Task 3 - Register and Enroll

**Goal:** *Task 3 is designed to uncover ways in which the registration process is creates obstacles for first-time users and how it could be streamlined.*

Once users have determined the best accounting course that meets the needs of the scenario in Task 2, Task 3 looks at the registration process and potential barriers to enrolling in the course. The goal of task 3 is to understand user expectations and preferences during the account creation and enrollment process in order to remove barriers and streamline the process.

#### **Task 4 - Review & Begin Current Course from Dashboard**

**Goal:** *The goal of this task is to understanding how the course content and process compares to user expectations for online learning. Which aspects of the course formatting cause such a high number of users to create accounts and enroll in courses but never start taking the course?*

The client has noted a large drop-off in people who create accounts and enroll in courses but never begin taking a class. Task 4 is designed to understand users' expectations for the course process for edX and how they begin taking a course. We're specifically interested in understanding how the course content and format meets or doesn't meet user expectations, and where inconsistencies impact the decision to not continue with courses at edX.org. Task 4 is designed to identify whether or not users understand how the course process works, which information about the course and its process is most valuable, and where the process is not being explained well enough to users so that it can be fixed.

#### **Task 5 - Review Upcoming Course from Dashboard**

**Goal:** *This task is designed to uncover how users approach courses with a future start date and whether or not the inability to immediately begin a course is cause for user abandonment.*

Task 5 is also designed to understand user expectations and possible causes of attrition, but focused on courses that have not yet begun. The functionality and accessibility of courses held in the future differs greatly from current courses, thus we want to better understand whether participants can retrieve information about an upcoming course and their impressions about upcoming courses in comparison to current courses.

#### **Post-Test - Terminology Questions**

**Goal:** *Expert Reviews revealed that the terminology of the courses was confusing. The goal is to examine the user's understanding of terminology on the edX website to identify disconnects between system and user language.*

These post-test questions specifically focus on the terminology used by edX.org. The most severe, global issue uncovered in our expert review was the disconnect between system and real world language on edX.org. This task focuses on whether or not users notice and understand the language and filter options available in order to select class offerings at edX.org, including courses versus programs, and availability options (self-paced, archived, starting soon, etc.). We're also looking at how this taxonomy compares to the users' expectations for and understanding of the edX experience.

### **Test Procedure**



## **Logistics**

Testing will occur both remotely and in person. A single usability evaluation will be run in at least 12 individual participant sessions. Each team member will moderate two sessions. One moderator and one observer will be present per session. Four in-person tests will take place in the Bentley UXC located in Waltham, Mass. The remaining two in-person tests will take place in San Diego, Calif. and New York City. Remote testing sessions will take place within the user's preferred location and shared through GoToMeeting.

We will simulate a typical learning environment during the usability evaluation. The usability evaluation must take place in a location where a network or wireless connection is available. The location will be large enough to comfortably accommodate a desk for the participant to sit at while completing the evaluation. This environment will be free of noise and distraction.

## **The Evaluation Process**

The usability test will be a 70-minute evaluation process and will include the following sections:

### **Participant greeting, consent forms (5 minutes)**

Each participant will be personally greeted by the moderator, introduced to the observer, and made to feel comfortable and relaxed. The participants will be reminded that they are being observed and videotaped and are asked to sign the appropriate release forms.

### **Orientation (5 minutes)**

The participants will receive a short, scripted introduction and orientation to the evaluation. The moderator will explain the purpose of the usability test, the think-aloud testing protocol, and additional information about what is expected of them. They will be assured that the edX website is the center of the evaluation and not themselves, and that they should be comfortable talking about and interacting with the website in whatever manner is typical and comfortable for them.

### **Usability Test (55 minutes)**

After the orientation, the moderator will give the participants a usability test consisting of a series of five moderated tasks, consisting of pre-task questions, the task itself and post-task questions. Participants will be asked to think aloud while completing tasks to explore the website, register for the site, enroll in a course, and review and begin a course.

The moderator may ask the participant to further verbalize his or her thoughts or provide

encouragement if the participant becomes stuck or hopelessly confused. These occurrences will be noted by the evaluation administrator, and will help to pinpoint the cause of the problem.

### **Participant post-test and debriefing (10 minutes)**

After all tasks are complete or the time expires, each participant will be debriefed by the evaluation administrator. The debriefing will be taped and will include the following:

- Post-test interview that includes participant's responses to probes from the evaluation moderator about specific errors or problems encountered during the evaluation, overall impressions, and any comments the participant would like to add about his or her experience
- Completion of a brief positive SUS questionnaire to quantify each user's perception of the overall edX experience

### **Honorarium**

After the debriefing session, the participants will fill out a form with their contact information to receive an honorarium for a verified edX course certificate, thanked for their efforts, and released.

## **Measures to be Collected**

In order to answer our research questions, we will collect both qualitative and quantitative information based on performance and preference during the usability testing sessions.

Our research questions include:

- **Landing Page experience**
  - How does the website compare to participant's expectations?
  - How well does the homepage convey what edX is and what users can accomplish there?
- **Search experience**
  - How easily can participants find a specific course?
  - How do participants prefer to find a course (e.g. search, browsing)?
  - If searching, do participants use the faceted search to refine search results?
  - If faceted search is used, how close it matches the participant's expectations?
- **Enrolling in and starting a course experience**
  - What obstacles do participants experience when registering, enrolling in

and beginning a course?

- At which points in the onboarding process do users falter or hit resistance?
- How do participants perceive the amount of time and steps in order to enroll to a course?
- How easily and successfully the participants enroll into a course?
- How does the course content and experience compare to users' expectations for an online learning experience?

#### **Qualitative approach:**

##### **Preference Metrics: to be measured during the scenarios and post-test**

Open-ended questions will be used to register:

- How the website matched user's expectations for content, structure, terminology and labeling

#### **Quantitative approach:**

##### **Performance Metrics: to be tracked during the scenarios**

- Time on task
- Errors of commission
- Number of tasks completed with and without assistance
  - 0 - Participant did not completed the task
  - 1 - Participant completed the task with difficulty or assistance
  - 2 - Participant completed the task without assistance

##### **Preference Metrics: to be measured after scenarios and post-test**

A Likert five-point scale will be used to measure:

- How the website matched user's expectations at different points in the on-boarding process
- Appropriateness of website's functionality to users' tasks
- Perceived amount of time and number of steps for
  - Searching
  - Enrolling
- Perceived ease of use

## Analysis Plan

At the completion of the usability tests, DG MACK will compile and analyze the findings. We will provide a final report, which will detail the significant problems and observations detected during the usability testing, and recommendations to address the findings.

The final report will also include the results of the positive SUS and the post-task questionnaires.

By combining our findings from the expert review, usability testing results, SUS, performance and preference metrics, we will deliver the usability findings in the following format:

- **Priority 1** - The findings related to **user drop-off or abandonment** from the edX platform
- **Priority 2** - The findings related to **confusion, causing users to falter or hesitate**
- **Priority 3** - The findings related to **streamlining** the edX platform for new users

Our final presentation will focus on issues identified as priority 1 and priority 2. Priority 3 issues will be provided to the client in an appendix for review.

## Equipment Needed

All participants will be required to use their own personal computer. Participants will be screened for a mixture of browsers and operating systems.

Local participants in the Boston area will be required to bring in their personal laptop for the testing session. Video equipment will be set up to record in-person sessions in the UXC. In-person participants in New York and San Diego will not be video-recorded.

Remote participants will be able to run GoToMeeting and use the screen-sharing and audio functions. GoToMeeting screen and audio capture will be recorded.

Moderators will have consent forms, task sheets, instructions, and pens. Observers will have pen and paper and a laptop equipped with GoToMeeting, if observing the session remotely.

## Sponsor's Responsibility/Dependencies

The sponsor will maintain timely communication with the DG MACK contact person to answer any questions or concerns and provide feedback on deliverables. The sponsor will maintain a stable, working website open for new accounts, course registration, and

course use. However, edX technical support will not be on hand in case of technical issues during the usability test sessions. The sponsor has agreed to provide honorariums of verified edX course certificates by email to all participants. The sponsor will provide further instruction on what types of accounts to use for testing (real user accounts or test accounts).

## Deliverables

As stated in the Project Proposal, DG MACK will deliver the following items to edX.

- **Usability Test Plan** (this document)  
The purpose of this is to ensure our individual usability testing sessions are on track with the goals of edX. This will be delivered with enough time for edX to provide further or corrective direction.
- **Expert Review Report**  
This document will contain insights and recommendations to edX. Each team member has conducted an individual expert review, the findings of which will be consolidated into a single report. These individual expert reviews have provided insight into the tasks outlined above. This report will also be delivered to edX with enough time for edX to provide further guidance and direction for DG MACK.

After the individual usability testing sessions, DG MACK will present the following deliverables to edX.

### Final Report

- The final report will have detailed analysis and debrief focusing on key issues and recommendations
- Formal presentation to edX team
- Raw recordings from individual usability testing sessions

## Schedule

Develop Test Plan	
No later than March 3	DG MACK will deliver the Test Plan to edX for review
No later than March 9	edX provides feedback on the Test Plan within 5 business days
Participant Recruiting & Screening	
March 9	DG MACK will begin to recruit participants that match the target participant demographic through a friends and family recruit

No later than March 27	DG MACK will enlist and screen for 14 potential participants that match the target participant demographic, and finalize a testing schedule for these participants (with 2 of the participants on standby in the event of participant cancellation).
<b>Deliver Expert Review</b>	
Week of March 27	DG MACK will present their Expert Review to edX detailing problems located and suggestion to improve the experience
<b>Usability Testing</b>	
March 27 - April 14	DG MACK will perform Usability Test with 12 of the enlisted participants
<b>Report Generation based on Analysis and Review</b>	
No later than April 26	DG MACK will submit a draft of the Analysis and Review to edX for feedback.
No later than April 28	edX will provide feedback on the draft report to DG MACK
<b>Final Report and Project Closure</b>	
Week of May 1 or May 8	DG MACK will <ul style="list-style-type: none"> <li>• Verify that objectives have been met with edX</li> <li>• Give a final presentation to edX detailing problems and suggestions</li> <li>• Send the Final Report &amp; raw testing footage to edX</li> </ul>

***For Appendix Items Listed Below, Please See Separate Appendices Attachment***

- Appendix A – Moderator’s Guide
- Appendix B – Screener
- Appendix C – Consent & honorarium forms