



# Matthew Mason

## Interaction Design And The User Experience

### TMA 04

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## Question 1

My project involves redesigning a Dungeons&Dragons (D&D) app to support new and experienced users in creating customised characters within 30 minutes or at the touch of a button. The two main types of stakeholders are users with no experience needing a fun, understandable, and efficient introduction to the game and character creation process opposing those more experienced who want a convenient and efficient way to track character and story progress that's satisfying and doesn't interrupt the games pace.

Users will predominantly utilize the phones touch screen and keyboard to enter and manipulate alphanumeric data requiring reasonable fine motor skills and good eyesight to read on-screen text. They can also download pre-made character profiles, use voice-to-text recognition for note taking and issuing commands, upload profile images, and shake the device to roll dice requiring attention to detail, memory, reasoning and be able to respond to change.

The app might be used in a wide variety of environments which can greatly affect the activities. From a quiet home setting where attention is maintainable, to being in a combat encounter surrounded by friends in the middle of a pub where distractions are everywhere. By working in conjunction with the game, the app provides convenience, efficiency, and an unencumbered way to manage a user's experience without being a distraction.

The main aim is for the app to make it easy and fun to create new characters while still allowing a customisable rule set and options to be established, for example, all character choices are final and cannot be changed throughout a campaign. It should provide a better user experience over physical books yet still be consistent with them regarding images, icons and the presentation used which provides affordance and constrains the use of custom icons leading to confusion. Comprehensive reference guides also provide effective and efficient interactive feedback about choices available.

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## Question 2

My prototype provides features that allows users to create characters for D&D, a complicated process the app breaks down into multiple steps via the use of a tutorial. This makes it a particularly relevant heuristic to my prototype. The elements of the interface adhere to a variety of principles providing consistency across the app, appropriate feedback through specific interactions and coherency through affordance and perceivability. Breaking the task into steps also makes it easier to learn and memorise, simplifying the cognitive process making it more efficient and effective. The use of large buttons makes them easy to press requiring less dexterity and visual ability helping to improve utility. It also allows the task to be undertaken across multiple locations and can be returned to later if the user is interrupted, rather than having to be completed in one sitting.

This leads on to another heuristic that my prototype doesn't particularly conform to but is relevant to my prototype. Designed to be used by newcomers and experienced players alike, including technical language related to D&D is necessary to understanding the experience so by having the character creation process broken down in to a number of steps, technical language and explanations can be introduced at more manageable intervals throughout the tutorial simplifying the cognitive process of understanding the rules and constraints of the game. While this should make it easier to remember definitions and meanings, any technical language used will provide a hyperlink to the corresponding entry in the reference guide which can be accessed by tapping the link. This process serves as an effective and efficient shortcut should users need a reminder of any technical language used providing feedback to the user by updating the screen with the correct information and improving the satisfaction of the user experience.

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### Question 3

For my prototype, utility is a fundamental usability goal that needs to be satisfied. The app's defining feature is to provide appropriate functionality so users can create custom characters for use in Dungeons and Dragons and beyond. It also needs to feel like it's supporting user's creativity. These two goals complement and contrast with each other making them particularly important to my project. There is a contrast between what the user wants to create and what constraints the rules determine is allowed which has the potential to stifle creativity for both new and existing users. Performing formative evaluations allow the production of quantitative and qualitative data. This can then be processed into datasets, categories, organised via patterns and themes and looked at to determine critical incidents which could then begin to reveal the way users carry out the task of creating a character. Following on from the initial data gathering and processing we can interpret the data to determine if the app is achieving its goals and to produce information leading to changes and recommendations that a redesign of the app will help fix and address any other problems. Because of the conflict between the constraints of the rules against the user's creativity, it is extremely important to conduct an evaluation around the utility of the product to discover the best way to support the users creativity and the character creation process. The usability question that focuses on the utility of the product will help guide method choices and what type of data is appropriate while the information revealed will help answer the question and improve the design of the app but most importantly, achieve the products usability goal and provide a supportive user experience.

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## Question 4

My prototypes main usability goal is utility; to provide the features so users can create characters for Dungeons&Dragons while achieving its user experience goal of supporting creativity. By evaluating the prototype against these goals, we can determine if the app meets the user's needs, while improving usability, and fixing any problems.

The focus of the evaluation should aim to answer the following:

1. Is the tutorial order for creating a character too strict or should it be more dynamic?
2. Does the app allow the user to create the character they envisioned?
3. Does the user understand how to interact with the interface elements to progress the task or do they find the experience frustrating?

Traditionally, users can create their character in whatever order they wish and while there is a beginners guide in the physical core rulebook (starting with selecting Race then class, ability points, descriptions and then equipment), constraining the process to the same order might potentially stifle creativity. While this may not be an issue for new users, the more experienced might see this as a hindrance as they might not follow traditional convention. This means it is important to evaluate the prototype using typical users to help understand the most appropriate order for conducting the tutorial and to support user creativity. It also helps determine if the user interface elements are understandable, perceivable, are consistent across the app and provide appropriate feedback. Lastly it helps with understanding regarding users physical and sensory capabilities and their cognitive process. By answering these questions, we can find out if the developing product is usable by a range of users and to achieve the task for which it was designed.

The usability evaluation sessions will take the approach of using a controlled setting to observe users remotely while interacting with the prototype. Typical users are those who have some experience of playing Dungeons&Dragons and have made more than one character before. The users will be tasked with working their way through a limited version of the prototypes tutorial to create a semi pre-prepared character while using the think-aloud method to elaborate on what they are feeling and doing. They will use a simulated interactive PowerPoint prototype that will record the choices made, via skype screen sharing, by the user when clicking on the different interface elements. If the users have a webcam, this will also be recorded along with their audio. After each session, the user will participate in a short follow up interview to discuss their thoughts about the app.

The data gathered will be measured in terms of the following:

- Number of users completing the task successfully
- Number and type of errors
- Categorisation of navigation problems verbalised by the user
- Categorisations of interface problems verbalised by the user
- Categorisation of processes the user wanted to achieve but the function wasn't available

The practical issues of the evaluation mainly revolve around the setting and equipment. In the current climate, the nationwide lockdown due to the coronavirus and social distancing measure means its not possible to travel to meet with users in a mutual location and could affect the ecological validity of the study. While technology can enable studies to continue with remote observation, the limitation of specific equipment the user has might not allow sufficiently accurate data to be gathered, for example, every user might own a webcam or microphone. To make sure the evaluation adheres to ethical guidelines, participants will be asked to read and sign an informed

consent form making sure the participants are aware of their rights. It will include information such as what is required of the task, how their data will be used with a promise not to reveal their identities to any third party and remain confidential with the option to withdraw and have their data erased at any point.

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## Question 5

### **Evaluation Script:**

Thank you for agreeing to participate in today's evaluation. Before we begin there are a few orders of business to go over. I'm just going to ask a few quick questions so I can understand the best way to proceed with the study.

Are you happy for this session to be recording now for evidence of the task explanation and the reading of the agreement to participate in respect to the consent form? If you do not wish to participate after the reading of the consent form then all recording and data pertaining to this study, this recording and your answers up until that point will be deleted and no further recording will take place.

If you user does not agree, then thank them for their time and stop the recording. making sure to delete all data relating to that user and move on to the next participant.

If user agrees, continue on with the following questions:

Do you have a printer that you can use?

Do you have a scanner you can use?

Do you have a webcam you can use?

Do you have a device you can use as a camera to take a photo?

The purpose of today's session is to help evaluate a new app for creating and managing character for use in Dungeon and Dragons using the core rule book as its base. The task you will be carrying out today is to use the prototype application you will shortly be provided with, to create a character for Dungeons&Dragons using the tutorial feature. As this is the first iteration of development, not all the features will be available for use such as entering text, for example, character descriptions, and instead, a limited set of buttons and menus will be available to help you work your way through the task. You will be required to talk aloud about what you want to do, what you are attempting to do, what the outcome of your actions are and how you are feeling about your actions and the prototype. After this there will be a short interview and the whole process should last between 30 – 60 minutes.

Please read over the consent form that you have been presented with (See next section for consent form used in this evaluation study). It will detail your rights as a participant and how your information will be stored and used. If there is any issue or difficulties in reading or understand any of the points laid out, please let me know and I will provide further explanation or assist with any other difficulties.

1. Please print the document, sign the bottom then scan and upload the document to the chat. Alternatively, email it to me at the email address provided.
2. Please print the document, sign the bottom, and hold the signed form up to your webcam so I can take a screenshot as a record.
3. Please take a picture of the form and upload it to the chat or send it to me via an email.
4. If you are unable to print the document to sign it, I will read all points and a verbal confirmation that you agree to the points listed and are happy to proceed will be taken as an alternative.

If the user does not wish to sign the consent form, stop the recording, and delete all information pertaining to the interaction with this user and thank them for their time.  
Begin evaluation.



## Consent form

I give permission for the following data and procedures to be used as part of the study and evaluation of using the interactive prototype to create a character for the game Dungeons&Dragons and other purposes outside of the game (Please check all that are appropriate)

- I agree to participate in the initial evaluation of the application.
- I agree that I am over 18 years of age.
- I agree to allow my details to be held on record from this point forward until the end of the application development or until the point I wish to withdraw from the study.
- I agree to allow my details to be held on record from this point forward only until the end of the evaluation or until the point I wish to withdraw from the study.
- I agree not to divulge any information pertaining to the study, application or processes or methods of evaluating said product.
- I wish for my details to not be passed on to any 3<sup>rd</sup> party companies.
- I agree to participate in any further research I consider appropriate, depending on availability throughout and after this study.

Below are the procedures that are required to be agreed upon as party of the study. If you are not happy agreeing to all the following, then please inform the evaluator and your participation in the study and any details you have already provided will be withdrawn.

- I agree to have the session videoed.
- I agree to have the sessions audio recorded.
- I agree to share my screen and my actions to be recorded.
- At any point during the study, I retain the ability to withdraw my participation and the removal of all my details from the system.

If you are happy with the options presented to you in this consent form and you are happy to proceed. Please sign and date below.

Date:	
Name:	
Signature:	

### **Observation notes for User 1:**

Home page: Made a comment saying it looks fairly useful and made the correct assumption you can load different character profiles in using the load button. Made a suggestion to include a character archetype as they find that an important aspect instead of the sex. New character button seemed self-explanatory to the user, and spoke about the importance of having a reference guide as it helps when making decisions and is a lot more convenient compared to flicking back and forth within the physical books which makes it feel disjointed.

Introduction screens: Read through the first few screens with ease, no complaints about text size or what needed to be clicked to progress through the tutorial.

Race selection screen: Read through the race selection screen, didn't click on the drop-down menu that was designed in the form of a scroll as they didn't realise it was an element that they could interact with. It was mentioned that because it was an interactive PowerPoint presentation, they were less inclined to explore by "tapping" the screen to see what would happen. Mentioned it was good for new users who don't understand the different races as it makes it easy to learn about them and acts as a good reminder for those who have a little bit more experience about more specific details. They also wanted to see each race's benefits and stats at the top of the page.

Class selection screen: Same problem with the drop-down menu not being interacted with. Class descriptions seem good. User wanted to see which combinations worked well with the race they selected in terms of stats as they held the opinion that the class is a more important decision to make over selecting the race. Wanted something a bit more dynamic.

Ability scores screen: User noted the highlighted text colour could be clicked on to take them to a feature which allowed them to roll the dice but shaking the device. They seemed excited by this feature and appeared to be quite happy by its inclusion. They mentioned how this could be used to speed up the process of character creation rather than waiting to roll dice in front of the Dungeon master to make sure no cheating is occurring. Would need to be proved by having the ability score text a different colour if entered by using the feature as evidence. Make sure it doesn't auto assign the numbers. Made a comment about how some users have the ability score in the larger box and other have the modifier in the bigger box so an option to customise this feature would need to be considered for future development.

Character details screen: They'd like to see more elaboration on the background section of the customisation options rather than just selecting or typing one in as the background can be integral to the game and some mechanics.

Equipment screen: said they wanted to be able to choose between whatever your classes starting gear is or a full customisation option using the amount of money the class allows and picking whatever equipment you can afford.

**Interview questions (post observation testing) for user 1:**

How did you find using the app? Very easy, fairly obvious back and continue buttons, not trying to work out how to get to the next screen or go back. Potentially add a small triangle to indicate it's a drop down menu (mentioned how it would be easier to determine if the menu was able to be interacted with when scrolling up and down the text, what happened would indicate that it was either a header or a menu, making it more contextual). Would like to see stats at the top of each race selection (as they use stats as a primary device to build their character). Would need to find a nice balance as some users prefer to build based on backgrounds first then stats.

Do you use any guides, books, websites, or apps to help you build characters? Yes a few

What are they why do you use them? Masterwork tools pathfinder open reference: none of the apps cover everything, but this does cover a lot of things that's relevant to the character I'm building. It has most of the rules and the most common rules from a collection of books. Reasonably well laid out and fairly easy to use. Just a good reference guide. Pathbuilder app: Very confusing at first but the more I played the game and used the app with it, the more I understood. It didn't explain things very well but every other app is terrible.

Do you have an idea of your character before beginning? I have an idea of race and class, then background. I think of how they got to their position after, so how did my dwarf end up becoming a barbarian, etc. or I want to be a robot man then working out backstory later. It doesn't have to be the most complimentary in term of stats but it has to match how it works in their head, combining both good stats and interesting story.

Do you think the order helped or hindered your creative process? It didn't hinder my process but then, everyone has their own process. I do race and class then work out the background and make the ability scores fit to match and combine everything. Others do stats first because if they get bad stats they can't create the character they want.

What was the best feature? Easy to understand, not overwhelming or too much information, keeps things relatively simple. Shake phone to roll dice as allows progress to be completed without having to have everyone get together to roll stats without people questioning what was rolled. You can't make up the rolls.

What was the worst feature? Drop down menus for race and class as I didn't understand what they were, equipment screen could use more information and what your classes choices of equipment would be.

What features would you want to see in an app like this? Contextual information when making changes to inform the user of consequences of making said change.

Below is the qualitative and quantitative data gathered from the evaluation study.

- How many users completed the task successfully: All users were able to complete the task successfully.
- Number and type of errors:

The number of overall errors during the task was 6 where a breakdown of error type and number of occurrences can be seen below.

  1. Interface element issue: Each user did not realise that a drop-down menu was present on the race and class selection screens (x 3).
  2. Interface element issue: Some of the users did not realise that to enter some information, the user was required to click on the specific area of the interface (x 2).
  3. Software limitation error: One user tried to click on the image of the phones scroll bar to move the textual elements within the app (x 1). This issue is not so much an error but more of a limitation of using PowerPoint in that interaction of some elements are limited. It is still important to include this because it allows us to see how users expect to interact with the navigation and interaction within the app.
- Categorisation of navigation problems:

There were no major issues in navigating back and forth between the different sections of the tutorial however one noted that the tutorial was very linear, and there was no option to switch between different sections easily. "It's pretty linear, I'm quite an indecisive person so like, being able to quickly go back and forth to different steps is quite important for me".
- Categorisation of interface problems:
  1. drop down menus not obvious
  2. Text entry fields were not made obvious they had to be clicked on to enter information.
  3. Home screen: one user wanted different fields listed in the current character selection button. They mentioned archetypes were more important to them while the sex was less important.
  4. Races stats were hard to locate – some users wanted them to be displayed at the top of each section that described the race for a quick reference ( this issue was mentioned mainly from more experienced players and may be something that is incorporated into the "build a new character" section as opposed to the tutorial).

The evaluation uncovered a number of concerns which need to be addressed during the next iteration of the development cycle. The key findings showed that currently the utility of the prototype can be improved upon by making some interface elements adhere to stricter design principles. This can be seen by the number of users who made errors when selecting the race and the class of the character they were trying to create. All of the users didn't realise that the interface element at the top of the aforementioned sections were drop-down menus that could be interacted with and instead thought they were simply a header for the section. This could be addressed by making it more obvious to the user that there is a drop-down menu by adding a small triangle to the right of the text to indicate this. Also, depending on how it behaves in the context of its position in relation to textual elements when scrolling would help determine what type of element it is "Seeing how it behaves in a live sense might change how I understand what that bit does". Making these changes will also help improve its affordance, perceivability and feedback to help the user understand what it is. This issue also means that the app can't be fully utilized to create the character the user envisioned or support their creativity, answering the questions the evaluation aimed to resolve. However, despite this, users found the app simple to use, easy to learn and liked the aesthetic of the design.

During the task and the interview, there were a number of issues raised by multiple users that were unrelated to the current questions the evaluation was looking to answer. The first of these was that stat information relating to the race and how it affects the creation was difficult to find, or not easily accessible within the tutorial. Instead of introduction information and story, they wanted the stats at the top of the section. This issue was raised mainly by the more experience users who use a process of creating a character that revolves around using stats as a method of building. As these are only small sections of each race, this design decision could be easily tested in a subsequent evaluation by measuring the time it takes users to find a specific piece of information given two different designs and how it affects efficiency, and the user experience.

Other issues mentioned were more contextual and dynamic responses such as recommendations of builds based on previous choices. This might involve a pop-up box with information about what options provide the most synergy in terms of stats when a specific race, class or background is chosen. This would provide better feedback, and a more satisfying user experience. Also mentioned was the enjoyment of having a dice rolling feature present within the app to help with speeding up the process of character creation. However, some apprehension was present, and users were unsure how this feature could prove that stats were rolled using the app rather than just being typed in and that the feature doesn't auto-fill the scores rolled, they want the ability to take those scores and place them in the abilities they want. This would need to be investigated and could potentially be implemented by having the value rolled using the app displayed in a colour that proves the feature was used rather than the score being typed in manually. Finally, one idea mentioned was allowing customisation of the order of the tutorial. However, this idea would work better when making a new character as opposed to being part of the tutorial. This can potentially be implemented by having different buttons where users can selection which section they want to begin with or having dynamic menus that can be rearranged to an order the user choses.

While the evaluation method allowed design issues to be discovered and provide a new set of requirements to be investigated, there are some aspects of the evaluation that I would do differently. Rather than doing a remote recording session, I would conduct the evaluation in person so I can assure the equipment is consistent for all users and rather than using a computer for the PowerPoint presentation, I would preload the slide show onto a test phone, use the mobile version

of PowerPoint and recording the phones screen. This would provide a more accurate representation of how users interact with apps.

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