

# Virtual Reality

A virtual reality project with accompanying worksheet by Jodi Robison



This virtual world is designed to help Alice understand what questions and issues may arise when she considers using virtual reality as a method for her project.

The user moves Alice through the environment. As she encounters each person along the way, the user clicks to engage them.



To start things off, the rabbit asks Alice, *Is your project suitable for Virtual Reality?*



The wise people of the environment offer questions for Alice that will help her understand the characteristics of projects that work especially well as Virtual World environments. Here she is asked, *Does your project require compression or expansion of time, like this tree growing before their eyes.*



*She says to Alice, There are many questions you need to answer. We are here to help you!*



Alice is then guided to the next wise person.



*Robert asks, Does your project involve simulations that are difficult to demonstrate in the real world, such as a lunar landing?*



A lunar module lands in the woods behind them. Then Alice is then guided to the next wise person.



Alice is then asked, *Does your project concern experimentation with physics, such as displacement, anti-gravity, or similar concepts?* [The ball hovers, drops then floats on the water surface beside them.]



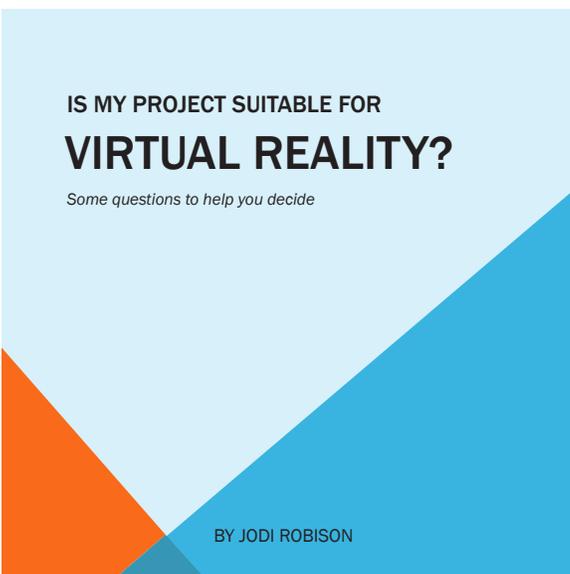
Fred then asks, *Does your project require historic, futuristic, representative, or fictional scenes, such as time travel?*



Alice realizes she is not taking notes and the questions are rather complex. She is then sent to see the Pharaoh.  
[Representative of time travel]



The Pharaoh greets her and suggests she read the paper dedicated to this topic.



The paper is a guided series of additional questions. It functions as a checklist, to help you decide if Virtual Reality is a good delivery method for your project.

# IS MY PROJECT SUITABLE FOR **VIRTUAL REALITY?**

*Some questions to help you decide*

BY JODI ROBISON

# Is my project suitable for VIRTUAL REALITY?

Virtual reality has a unique set of characteristics and abilities that make it an exceptional choice for a variety of applications. Given unlimited funds, time allowance, brain power, design strength, and user feedback, it seems we could turn any objective into a virtual reality project, but the real world seldom provides this perfect environment.

The question “Is my project suitable for virtual reality?” can only be answered with, at first, more questions. Well-crafted and effective virtual reality is a costly endeavor that goes beyond economics, thus the overarching question is “Do the benefits outweigh the costs?” Very clearly, there are some objectives for which a virtual environment would simply distract the learner. It is for this group of objectives that we need to determine and redirect our focus toward alternative learning methods. Alternative methods in this case do not necessarily mean traditional learning methods, but rather a choice among a myriad of suitable technologies and other methods that are worthy of consideration and potentially more suitable for your project.

Dr. Richard Ferdig, professor of Virtual Reality, at Kent State University says, “Every technology has affordances and constraints that make them more or less useful in various contexts.” This statement lays the ground for the following questionnaire which is intended to point you in the direction of finding the answer to the question “**Is my project suitable for virtual reality?**”

Consider for a moment, a few of the problems that VR excels with: (Sherman and Craig, 2003, p 417)

- Problems that cannot be demonstrated in real life
- Problems that cannot be studied in real life safely
- Problems that cannot be experimented with in real life due to cost constraints
- Problems that involve “What if” scenarios

Even if your project does not fit the above list, it may still be suitable and worthy of the investment in virtual reality.

Virtual reality, like most educational objectives, begins with a problem to solve. It is important to clearly define that problem and the learning objectives before beginning the questionnaire.

## Step 1: Define the Problem

*Answer the following questions:*

1) What problem are you hoping to solve? \_\_\_\_\_

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2) Determine and write down your goal(s), terminal objective(s) and performance objective(s) for your project.

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*Proceed to step 2*

## Step 2: Covering the Basics

This group of questions address some basic content, technical, ethical, and characteristic concerns of your project. Answer the following questions: Y or N

### Content Concerns: Does my project...?

- involve inherently 1 or 2 dimensional concepts? ..... Y N
- have data that is well represented as facts or 2-dimensional plots? ..... Y N

### Technical Concerns: Does my project...?

- require close registration with real world geography? ..... Y N
- require close alignment with real world time or other real world dimensions/processes? ..... Y N
- require a critical sense of touch/haptic output? ..... Y N
- need precise tracking/haptic input? ..... Y N
- demand impractical amounts of design time or computer power? ..... Y N

### Additional Concerns: Does my project...?

- involve marketing that interferes with educational objectives? ..... Y N
- escapism that is not beneficial to the user?? ..... Y N
- include distractive elements that are nonessential to the objectives? ..... Y N
- involve negative role models not connected to the learning objective? ..... Y N
- invoke unnecessary violence or destruction that inhibits the objectives?? ..... Y N
- impede productivity or learning? ? ..... Y N

*If you answered Yes to ANY of these questions, your project may NOT be appropriate for virtual reality. You may wish to explore and compare alternative learning methods, but you should first finish out the questionnaire.*

*Please proceed to step 3.*

## Step 3: Digging Deeper into Content

Answer the following questions: Y or N

### If my project was made into virtual reality

#### would it \_\_\_\_\_ (the following) better than alternative learning methods...?

- increase empathy? ..... Y N
- increase understanding or productivity? ..... Y N
- improve the users ability to examine or explore a 3 dimensional scene or space? ..... Y N
- make complex procedures or training steps easier to understand? ..... Y N
- improve the users quality of life? ..... Y N
- convey ideas or information? ..... Y N
- compress or expand time in a beneficial way? ..... Y N
- explore non-invasive or safe experimentation? ..... Y N
- increase understanding of safety measures? ..... Y N
- involve rare sightings of nature or other? ..... Y N
- make use of controlled environment? ..... Y N
- demand a dramatic change of scale? ..... Y N
- require a unique comparison of size or space? ..... Y N
- communicate 3-D visualization? ..... Y N
- make use of adaptive technology and feedback? ..... Y N
- offer cost savings? ..... Y N
- promote cultural understanding? ..... Y N
- uniquely manipulate 3D objects? ..... Y N

explore characteristics or scenarios not available in real world? .....	Y	N
simulate unique or cost prohibitive environments? .....	Y	N
allow familiarization with a physical space (real or fictitious)? .....	Y	N
enable repeated practice by remote and/or multiple users? .....	Y	N
make use of collaboration that is physically or otherwise unavailable? .....	Y	N

If you answered Yes to one or more of these questions, your project may be appropriate for VR.

Please proceed to steps 4 and 5

## Step 4: Some Planning Considerations

Answer the following questions: Y or N

**The following questions are designed to familiarize you with the scope of a VR project.**

Do you have or can you confirm funding and resources for your project? .....	Y	N
Do you have the personnel available concerning, planning, design, & technology? .....	Y	N
Do you have the technology, software, computer power necessary to complete the project? .....	Y	N
Does your project allow for reasonable and high quality representation using VR software?.....	Y	N
Does your project allow for enough time to develop and test a VR environment?.....	Y	N
Do you have a sound plan for the delivery of the virtual reality learning module? .....	Y	N

## Step 5: Closing Questions

Now, imagine that all conditions have been met and your project is destined to be virtual reality,

**Will my VR project...**

be a worthwhile experience, overall? .....	Y	N
be worth my (and others) time to develop it? .....	Y	N
be worth my (and others) cost to develop it? .....	Y	N
most importantly, be worth the users time experiencing it? .....	Y	N

If you answered Yes to all of these questions, your project is ready to take to the planning and design stage. Keep these questions for reference as you proceed.

### ***“See the forest through the trees.”***

Once you consider all of the fine points, remember to step back, away from the details, and look again at your project as a whole. Continue to revisit your overall objective as you move forward.

“Plentie is nodeintie, ye see not your owne ease. I see, ye can not see the wood for trees.”

-1546 J. HEYWOOD Prov. II. iv. (1867)

Questionnaire and accompanying Alice VR module prepared by Jodi Robison

**Questions derived from the following sources:**

Sherman, W., & Craig, A. (2003). *Understanding virtual reality interface, application, and design*. San Francisco, CA: Morgan Kaufmann.  
Gutierrez, M., Vexo, F., & Thalmann, D. (2008). *Stepping into Virtual Reality*. London: Springer.