The Usability of Parallax Scrolling by Pietro Murano

When you visit a web site, what is the most annoying thing or interaction aspect that makes your blood boil? For some people it is when a web site employs parallax scrolling.

Although parallax scrolling appears in some web sites, the main issue is: is it a user-friendly design? And how might it affect a designer aiming to launch a web site that is universally designed?

So, what is parallax scrolling?

Parallax scrolling within a web page can be explained as usually having several backgrounds that move at different speeds. This creates a visual three-dimensional effect of motion. Typically, when a user scrolls, elements within the web page will move to some other position and this will occur at potentially differing speeds.

To try and get some insights into whether parallax scrolling was synonymous with good usability, at Oslo Metropolitan University we carried out a small investigation into the issue. We did this by means of an experiment and two prototype web sites.

The web sites were both the same and were designed to emulate a restaurant web site where a user could order meals and drinks. One of the web sites was implemented with parallax scrolling and other was implemented with normal scrolling. In other words, with no parallax effects.

We recruited a small number of six users and they were asked to complete 3 tasks under each web version. The tasks were of the kind involving finding information about the restaurant’s dishes and drinks. This process in turn ensured the users had to scroll in their tasks and therefore experience parallax scrolling and normal scrolling.

We tried to gain insights into performance and user experience issues with this experiment.

For performance, we looked at task speed and errors and from the data collected, we found that there were no big differences between the two types of web sites. There was

a marginal increase in task speed when the users used the web site without the parallax scrolling. The error rate done by users was almost identical under both web sites.

The user experience aspects were obtained from a questionnaire that was designed. We had four questions that specifically aimed to compare users' experience with the two web sites containing the two different kinds of scrolling.

The questions covered the level of interest while scrolling through the content of the web site, how pleasant it was to scroll through the content of the web site, how confident users felt whilst carrying out the tasks and the level of preference over the two scrolling methods.

Once again, we observed no big differences in the users' perceptions about these topics. There were only very marginal differences. The small differences indicated that our group of users had a very slight preference for the web site version implemented with parallax scrolling.

However, with a very small group of only 6 users taking part in the study, we cannot be really categorical based on the results of the experiment.

Interestingly, though, web design guidelines are quite indicative.

Some standard guidelines suggest that parallax scrolling should either be avoided or be implemented in such a manner that it can be controlled or switched off at will by a user. The Web Content Accessibility Guidelines (WCAG) suggest implementations that allow 'motion animation triggered by interaction' to be switched off. The exception to this is if the animation itself is a complete requirement in terms of some functionality or that the information itself needs such an animation.

Further, the Web Content Accessibility Guidelines state what is already known by researchers in this area, and that is, that animation can cause dizziness and nausea in some users.

And if we think a little about universal design, which essentially means that the design of products and environments need to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design.

If a designer or developer implements parallax scrolling that cannot be switched off and for no particular reason other than it may be considered to be ‘nice’ or ‘cool’, then this approach may go against the universal design principles. For example, Principle 1 is about ‘Equitable Use’ – essentially that a design must be useful and marketable to people with diverse abilities. , principle 1 also talks about avoiding ‘segregating or stigmatizing any users’. Think about it, if parallax scrolling causes nausea or headaches in some users, then it clearly stigmatizes some users and should not be used or at the very least should be easily turned off.

Principle 2 of the universal design principles is about ‘Flexibility in Use’ and part of that principle advocates ‘Providing choice in methods of use.’ What does it mean? Well, clearly if users are forced to use parallax scrolling that in many cases is unnecessary, then such an implementation does not provide a choice for end-users. So it’s therefore not as flexible as it could be.

Principle 6 of the universal design principles is about ‘Low Physical Effort’. How does it apply to the issue of parallax scrolling we are talking about here? It should be clear that an interaction method that can create in users’ nausea and headaches is not fostering lower physical effort in using the web site.

Although our small study into parallax scrolling did not reveal any categorical observations, potentially due to having too few users and perhaps tasks that were too easy, we do have clear indications from already existing guidelines that suggest overall to use parallax scrolling only if it really contributes something essential and to develop any such interactions with the option to switch them off, should a user dislike them or feel ill over them.

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