Student Satisfaction and Motivation as it Relates to Course Design and Aesthetics

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Abstract

The purpose of this literature review is to determine if visual aesthetics, organization, and navigation of the digital platform for online learning has an impact on student satisfaction and self-efficacy. Design is important to all aspects of visual communication including online course design and, therefore, aesthetics and principles of design should be applied to the online learning environment. Screen design has an impact of perceived value and credibility which is why websites follow user interface design guidelines, these same principles should be considered in online course design. Student satisfaction is related to motivation and course design has been shown to impact motivation, therefore, good course design can have an impact on student satisfaction which in turn motivates.

Keywords: aesthetics, motivation, online course design, self-efficacy, student satisfaction, course navigation

Introduction

Student satisfaction as it relates to interaction with online courses and course materials can affect self-efficacy and motivation. It is important to understand how student interaction through effectively designed online courses will ultimately influence learning and continued engagement. How a student is motivated and what role satisfaction with the interaction prompted by the course design plays in the perceived value, allows the relationship between motivation and design to be fleshed out. The online course design, therefore, is effective when the principles of design, design guidelines, and the overall aesthetics of the course are taken into account from the beginning of the design phase and are used and referenced throughout the process. The visual cues that a student is exposed to and how these cues create relative satisfaction is an important part of the overall effectiveness of online offerings. Whether one is considering a website or a Learning Management System (LMS) for course delivery, the users have their first impression as they engage with the designed interface and this impression can either positively reinforce the students efforts or conversely the students can begin to have doubts about the information's credibility. The digital platform then is no different from the print environment as the cover of a book, the design and layout of images and text, all have impact on the overall satisfaction of the viewer and, therefore, must be high quality, with effective navigation, and be enjoyable for the user.

Importance of Design in Website Development

Concentrating on usability when designing a website eliminates distractions thereby offering users a more desirable online experience. Usability is about removing roadblocks and obstacles that impede a great experience to increase motivation (Anderson, 2011). The internet is a delivery medium for a multitude of activities including, but not limited to, sales, services,

marketing, learning etc. The design of the website has an impact on what the viewer sees and feels; the experience should be user-centered as well as engaging. Krug (2014) explained that web pages should be self-evident, users should understand what is being expressed and how to use the information without expending any effort thinking about it. Ease of use is essential; Hassenzahl, Beu, and Burmester (2001) described ease of use as the joy of use, asserting "you don't notice the design but you are drawn to it" (p. 1). Companies that are trying to make a good impression, endeavoring to convince customers to purchase their product, or desirous of swaying viewers to their point-of-view, spend countless hours and money designing a visually attractive website because of the impact of the visual experience. The design takes into consideration visual aesthetics including: multimedia, fonts, color, balance, unity, proximity, etc. Users try to decipher the visual message to determine if it is credible and to what level it should be absorbed and used (DiMarco, 2010). If the user experience is not enjoyable, the user will be less likely to spend time or revisit the website.

Alongside the usability component of website design is the aspect of perception, the visual experience which validates value and credibility. Perception is active, your perceptual senses reach out and pull in what you need rather than just filtering what comes to you (Johnson, 2010). A digital designer is charged with the task of communicating to inform, persuade, educate, or entertain (DiMarco, 2010). Good design shows a clear intention, direct usage, reflecting the purpose and meaning of the site (Hoekman, 2011). Thoughtful visual communication requires researching audiences, recognizing cultural and societal viewpoints, and delivering a clear message based on that research (DiMarco, 2010). Optimal design not only elicits a positive response from the viewer but it also communicates the message to the desired audience. This methodology of using aesthetics to deliver a message spotlights the experience as

a functional part of the message, thereby making the experience more enjoyable resulting in a

positive response. Using design conventions makes features more visible and attractive to the

user (Nielsen & Pernice, 2010).

The perception that a product or service has the value proposition that the user seeks

begins with the visual interaction with a website. A viewer's perception of a company is

influenced by their experience with that company including their online experience with the

website. Viewers judge messages based on the medium through which the message is delivered

(Benedetti & deHart, 1997). From here, further exploration may lead to understanding the

message, entertaining the offer, or deciding to make a purchase. If one navigates a site and

thoroughly understands the intended meaning, the truism is confirmed that good design

influences perception and ultimately leads to a positive experience. Anderson (2011) contended,

"vision trumps all other senses and is the most direct way to perception" (p. 8). When a user

navigates to a website on their computer or mobile device, they make a judgement about that site

before they have had time to read the content. Online courses are delivered through a digital

medium and can benefit from the guidelines of visual communication design.

Visual Nature of the Online Learning Environment

Online learning content is delivered to learners through digital learning

tools/applications, web pages, or a Learning Management System (LMS). An LMS is used to

build and maintain course websites (Naveh, Turbin & Pliskin, 2010). Online courses are visual in

nature much like a website and should consider some of the same visual principles used in web

design during the development process (Anderson, 2011; David & Glore, 2010; Robins &

Holmes, 2008). Most website design as well as online courses rely on visual communication.

Robins and Holmes (2008) found that before a user comprehends any information on a website,

the credibility is subconsciously judged based on the visual design of the site. Website design follows guidelines for visual aesthetics and user interface design because sites with better design are considered more credible. David and Glore (2010) pointed to a body of knowledge demonstrating that aesthetics play an important role in user reactions to products and websites. The same idea can be applied to the online learning environment; courses that follow design principles are more apt to be well received. Value is perceived by students based on visual layout and applied design principles (Chang, Dooley, & Tuovinen, 2002). When visuals are presented using design principles, it saves the user work because the organization and prioritization have been clearly defined so the page can be processed almost immediately (Krug, 2014). Understanding the value and impact of a well-designed online experience, the effort to make a positive first impression is even more important. Although the content and message must eventually resonate with the viewer, the fact remains that positive visual stimulation increases the perceived value of the product or credibility of the site. Layout and the functionality of a website contribute to the reception of input by the user and, therefore, is crucial in establishing perceived credibility. Just one wrong design choice can transform how a user regards the entire website (Nielsen & Pernice, 2010). When there is a positive reaction to the website, it validates the design as appropriate, engaging, and aesthetically pleasing. The design can bring the viewer to an understanding of the message and persuade them to act, buy, react, follow etc. (DiMarco, 2010). Aesthetics and design principles are an important component of the overall layout of an effective site. In the effort to create the credibility necessary for the user to engage, it is absolutely necessary to draw in the user with a positive reaction to the visual cues of the site.

        People make technology decisions based on how that technology makes them feel (O'Brien & Toms, 2010). Principles of design should be used deliberately to enhance meaning

and improve understanding (Fraher & Boyd-Brent, 2010). When elements are delivered

effectively on the page, the user is directed to the areas of focus offering a clear meaning to the

information. The effectiveness of a learning experience is evident, in part, through the course

design (Yang & Cornelious, 2005). Principles of design can be used in online course design as a

means for improving understanding as well as perception. It is important to consider the

student's point-of-view when designing and developing online course materials (Gibson &

Dunning, 2012). The focus of and attention to the overall effectiveness of the page design is

critically important to establish a connection with the user. Communication and instructions are

delivered through the course design and the visual layout contributes to making navigation easier

and improving the learning experience (Gibson & Dunning, 2012; Yang & Cornelious, 2005). In

interface design, the user may be strongly affected by the aesthetic aspect of the page design

(Kurosu & Kashimura, 1995), the same can be said for learning design. "The visual isn't just a

veneer; it's the single most important source of information for most people" (Peters, 2014, p.

75). The visual design of the page should allow users to know what to do without training or

instruction; everything should have a place and a function (Norman, 2013). More than just the

technology that drives the interface, design should be a friendly and reassuring guide ensuring

that the user is able to navigate to their, or the site's, desired outcome. The ability to cause

viewers to experience a positive encounter with the site, absent unnecessary distractions or

lateral navigation that has no added value, will be the difference between a negative experience

and a positive experience. The connection that can be created can improve the conveyance of

information as well as the eventual understanding of the meaning of what was conveyed. Peters

(2014) outlined that every element in a design should have a reason for being on the page, visual

elements are valuable to the learning experience when they are not lost in a clutter of

unimportant elements. This goes to the very heart of what online courses are aspiring to be --effective interfaces to create a connection and foster learning. Presuming that the design is appropriate, the placement, attainability, and usefulness of each element is another reminder that the site is meant to be informative, enjoyable, or both. Users gain information from the visual aspects of the site and, in many cases, these visual elements are the very basis for delivering content and verifying understanding. There is a functionality to each element and the designer is prudent to give attention to each one to ensure that the overall effect is pleasing and productive.

O'Brien and Toms (2010) identified aesthetic attributes as a contributor to a positive online user experience. "Positive emotions have a great impact on learning, curiosity, and creative thought" (Norman, 2007, p. 19). Students are more apt to use online course material that is easy, intuitive, visually pleasing, and offers them a positive experience. A pleasing experience delivers joy and a pleasing design makes people feel good (Shih & Liu, 2007). Design elements organized well on the page guide the user to the correct areas of focus, which applies to web page design but is also relevant to online educational material design. Shih and Liu (2007) affirmed that implementing user design principles in designing educational applications enabled learners to put more trust in the content. Students are more likely to persist in an online course that is easy to use and visually appealing. This persistence, when supported by the technology and design, will continue to improve both the retention of content as it relates to students and the desire to learn and complete courses within a given program, degree, or focus area. Gibson and Dunning (2012) reported students surveyed described greater comfort in courses that utilized a standard course design. Although the desire to be successful is not dependent upon enjoyable experiences while navigating online content, the nurturing of this desire can be bolstered with appropriate and visually attractive content. An online interface that is easy to use generates a

more positive attitude which improves satisfaction and increases the use of the interface (Cheok & Wong, 2015). Creating an emotional experience, especially a pleasing one, enables users to capture content and stay positive. The process by which a user gains feedback for their curiosity and, therefore, gains trust in the site, is rooted in the foundation of design and, by extension, the organization of a site. There must be a logical and repeatable pathway for the user in order for them to feel positive and satisfied with their approach and results.

Design Aesthetics Linked to Usability and Satisfaction

Websites that are well received visually are associated with perceptions of ease of use (Tractinsky & Katz, 2000). A layout that is easy to use also elicits a positive response from the user and lends itself to a higher degree of contentment. Norman (2007) contended that emotions change the way the mind solves problems, so if aesthetics change a person's emotional state, it stands to reason that visually pleasing designs evoke a positive emotional state. Students should feel comfortable in an online course (Bezovski & Poorani, 2016). The visual structure also affords students a better opportunity to work with course material, other students, as well as the instructor, all leading to a more positive experience. Visuals that are optimized to offer a perceived structure are easier to understand and navigate (Johnson, 2010). Consequently, when these connections and, therefore, the activities are well designed, the student can navigate more confidently. Confident navigation means that the information is readily available and the student is more apt to explore and be engaged in the course material. A well designed LMS fostered active engagement and offered more meaningful connections for students in an online course (Brito, 2017). These connections are supported by the positive experience that good visual design has created. The LMS user's overall satisfaction can be linked to the comfort with navigation as well as his or her relative confidence engaging with the site. Visual layout and the

supportive engagement that these elements evoke from the user allow for a more satisfying

experience when actively engaging with online learning course materials.

"No one will invest time and effort in learning something new unless he trusts the

source" (Peters, 2014, p. 77). The experience created by good screen design can influence the

way people feel and how they behave which promotes persistence in an online learning

application (Fogg, Cuellar, & Danielson, 2009). The design of an online course including

aesthetics has a significant impact on student satisfaction (Hancock, 2004). These navigational

cues that not only show a student where to find information, but also reinforce confidence

through repetition of successful search and procurement of information, are part and parcel of a

positive experiential interface. Satisfaction could be described as the gap between what the user

experiences and their expectations (Cheok & Wong, 2015). The more satisfied a learner is with

the environment, the greater chance that he or she will continue to work in that environment. In

their study, Cheok and Wong (2015) identified satisfaction as the variable with the most

prominent influence on usage. While the overall experience is not predicated on design alone, the

perception of trustworthiness for the source and one's desire to continue to pursue the material

through further usage of the site is augmented by positive navigation and pleasing design. Gazza

(2015) reported that students indicated improved course design enhanced understanding of

information. When the layout of the course is mystifying, learners struggle with locating material

and assignments because navigation is difficult to decipher. Confusing course design led to

student questions on where to locate content, learning activities, and assignments (Gazza, 2015).

Shee and Wang (2006) identified the learner interface as the most important dimension of the

eLearning system. Removing the ambiguous and allowing the student to find and engage

information readily serves to promote trust as well as fosters completion of a given course.

Usability is key to the effectiveness and efficiency of an online learning course (Unal & Unal, 2011). Improved usage as it relates to time spent engaged in a course is a positive indication that the user in a LMS is understanding the material and their expectations are being met.

Mayer (2009) described multimedia instruction as the presentation of material using both words and pictures to promote learning. Information rich content includes a wide variety of media and can be a means of learner engagement (O'Brien & Toms, 2008). Clark and Mayer (2001) referred to the combination of text and graphics as multimedia and contended that "people learn more deeply from words and graphics than from words alone." (p. 81). Image and text need to be purposefully designed not just randomly placed on the page or in an online course design; the image and text need to be effective in supporting the purpose or reinforcing the point. Satisfaction with characteristics of the eLearning platform is related to value and perception (Brito, 2017). Satisfaction and motivation can be affected by good online course design and more importantly, the depth of understanding and relative satisfaction with the material can be improved. Users are seeking emotional satisfaction when interacting with online material (Shih, Liu, 2007). While the overall efficacy of any online learning platform is the combination of content, design, and purpose, the inept design of these factors will dramatically decrease the ease with which one can interface with the material and, therefore, fail to be as satisfying as would be the case if all the elements were aesthetically pleasing. Poorly composed content will overcome brilliant research just as the lack of pleasing design will cause otherwise clear and useful information to be discounted or forgotten. A consistent and evident structure and design which incorporates both visual elements and text allows for a more robust and rewarding experience. The eLearning platform should be designed with clarity, consistency, unity, readability, appropriateness of multimedia, and ease of navigation (Kim & Lee, 2008). Emotional

engagement with the site and material produces a deeper understanding of and affinity for the

materials presented. This level of involvement should generate overall positive results for the

learner.

Student Satisfaction Linked to Motivation

Students that reported satisfaction of online course design and usability were motivated to

a greater degree to interact with the course material. Cheok and Wong (2015) identified

satisfaction as the variable with the most notable influence on usage of the LMS. When students

feel comfortable in the online course, they are more confident and motivated. An indicator of

online course clarity through good visual design and student satisfaction is confirmed when

students actually navigate and use the course (Gazza, 2015). Learners are frustrated when course

design and navigation is difficult to understand which impedes motivation and negatively affects

confidence. Allen (2011) reported that, in order to work and avoid student frustration, eLearning

needs to incorporate good user interface design. Just as an occasional road sign that indicates one

is traveling in the correct direction and approaching their destination can assuage nervous

travelers from their fear of becoming lost, proper visual guides and perceived support within the

navigation of a site will direct the user to a satisfactory and complete usage. The usability of an

online course is key to the effectiveness and efficiency of the course (Unal & Unal, 2011). The

background technology that enables users to interact with material should not be the focus, but

should be the facilitator. Ease of navigation, hand-in-hand with good design, will reinforce the

progress of a student and simultaneously stave off any frustration that could derail the student's

learning progress.

Motivation is a prerequisite for meaningful learning (Mayer, 2011). A positive emotional

online experience created with a focus on design can provoke a learner's intrinsic motivation

which can lead to a better learning experience (Shih & Liu, 2007). A well designed eLearning experience can precipitate a more positive attitude which affects a student's motivation in an online course. Students assign value to a well implemented and organized learning experience (Armstrong, 2011). Attention should be focused on the student experience of eLearning (Gilbert, Morton & Rowley, 2007). This outward focus on the learner as opposed to an inward focus on the material is an important departure from narrow course design. Liaw (2008) found that perceived satisfaction in eLearning positively affected learners' usage of course materials. In order for students to have a chance to learn in the online environment, they must interact with the LMS/learning application and engage with the course material; if the LMS/learning application is difficult to use, learners will be less inclined to spend time. Effective implementation of eLearning depends upon the learners having a positive attitude toward it (Liaw, Huang, & Chen, 2007). Educators must understand that the online experience is not a matter of pouring content into an electronic classroom, but rather creating that classroom electronically to intensify the quality of learning and delivery of content. Cheok and Wong (2015) explained that the perceived ease of use of online educational material affects attitudes which in turn affects whether the user will use or reject the material. The delivery vehicle should not overpower the message. The very essence of the model bespeaks the value of well-designed experiences that serve to create positive regard and minimize barriers to learning. Gaining the attention, maintaining the attention, and garnering a positive attitude of the learner are accomplished through a well-designed eLearning system.

According to Ozkan & Koseler (2009), a well-designed learner interface is one of the most critical factors in determining student satisfaction in an online learning environment and this factor is an important aspect of developing a learner's mindset. Course design that is

intuitive allows the learner to focus on content and produces a more enjoyable experience.

Aesthetics and content structure can affect learner's behavior (Stavrinoudis & Xenos, 2007).

Securing the student's satisfaction with enjoyable, well-designed interfaces should be the goal of

thoughtful designers. Good online course design increases the likelihood that learners will be

able to focus on the required task and intended content rather than having to focus on how to

access course material (Neal & Feldstein, 2006). When users are forced to concentrate on how to

get to the next useful nugget of data within a poorly designed course, they are far more likely to

become distracted and abandon their search.   Ozkan and Koseler (2009) described quality

eLearning as stable, reliable, easy to use, user-friendly with a well-organized design and

explained that students place great value on quality. Their study showed a positive statistical

significant relationship between learners' attitudes and "learners' perceived enjoyment towards

the eLearning system" (Ozkan & Koseler, 2009, p. 1291). How aesthetics and content are

structured affects the user's behavior. Stenalt and Godsk (2006) revealed that pleasure in an

online course led to greater involvement with learning activities and influenced motivation. This

positive reaction to a successful experience is associated with the user making an educational

journey from beginning to end. There are always challenges as well as distractions in any such

process, but it is the responsibility and purpose of the designer to mitigate unnecessary

challenges that arise from navigation. Visual communication, including multimedia elements,

should be integrated into the eLearning design in order to attract the learner and keep them

engaged (Stenalt & Godsk, 2006). Also, the quality design and integration of technology within a

course becomes part of the overall picture not the screaming siren that overpowers the meaning.

The data supports that attitude and the impact of course design on the user equates with relative

happiness with the eLearning system and the related information provided within.

Conclusion

Online learning course designers should consider the importance of aesthetics in the

design of eLearning courses to ensure that the outcome has the most appealing look possible.

Interface design plays an important role in perceived usability and credibility and the avoidance

of poor design will reinforce the perceived value of the course for the user. Designing eLearning

using principles of design can lead to more student satisfaction as measured by course

completions as well as overall engagement within the site. Student motivation is impacted by

satisfaction with course navigation and design where the ability of a user to not only move within

a course without hesitation or confusion but also engage with the material is a supplemental

benefit. In web design, it is important to gain the user's attention and keep it, this should also be

the focus of eLearning course design. There is both an intrinsic and a fiduciary reason that this

engagement is so important. From the business side of the equation, students who are satisfied

and engaged tend to continue to take courses and provide tuition to institutions. From the purely

educational value standpoint, maintaining the focus of a student greatly increases their likeliness

of success. Aesthetics must be considered in order to increase understandability, functionality,

and ease of use in the eLearning environment (Stavrinousdis & Xenos, 2007). Design principles

used in eLearning design promote an enhanced sense of engagement and student motivation

(Fraher & Boyd-Brent, 2010). There are few studies that focus on student perceptions of the

design of online learning, where the axiom "You only have one chance to make a first

impression" can be shown to be critically important. A poorly designed interface can negatively

influence a user's perception of usability and credibility. Credibility and value are perceived

when a site is designed using design principles so it would stand to reason that a well-designed

online course would gain a student's attention. Understanding students' perceptions of the online

learning environment can help to better develop online learning environments (Armstrong, 2011). Perceived value as it relates to students' experience begins the first time they interact with the user interface and influences their motivation in the course. This value is reinforced with ease of navigation and a feeling of accomplishment when the student completes the course. There is no substitution for quality information, and the old adage of 'garbage in garbage out' is not without merit in the online environment. Contrarily, the very best design and organization will allow the user to overcome some deficiencies in content with a supportive environment and positive visual feedback.

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