Wearable Technology and E-Learning

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Abstract - **Searching Google for "Wearable in e-learning", 1.76 million entries were found. Many examples have been documented. From Wikipedia and Wearabledevices.com, wearable technology refers to "electronic technologies or computers that are incorporated into items of clothing and accessories which can comfortably be worn on the body. Famous examples of wearables are Google glasses and Apple Watch. This paper will present 7 Ways for using Google Glass in e-Learning, smart watch for e-learning, wearable technology in corporate training, and GoPro camera for e-learning.**

Keywords - **Wearable Technology in E-Learning, Google Glass, Smart Watch, GoPro Camera, Corporate Training**

I. INTRODUCTION

From Wikipedia [1] and Wearabledevices.com [2], wearable technology refers to "electronic technologies or computers that are incorporated into items of clothing and accessories which can comfortably be worn on the body. These wearable devices can perform many of the same computing tasks as mobile phones and laptop computers; however, in some cases, wearable technology can outperform these hand-held devices entirely". From Statista.com [3], for the year 2018, the wearable device market value will be about US$12.642 million, and the unit shipment will be 111.9 million units. Sales of smart glasses such as Google glass was projected to hit 1 billion around 2020 [4]. This paper will present 7 ways for using Google glass in eLearning, smart watch for eLearning, wearable technology in corporate training, and GoPro camera for eLearning.

II. SEVEN WAYS FOR USING GOOGLE GLASS IN ELEARNING

There is an article "7 Ways For Using Google Glass In eLearning" [4]. The first way is in Developing truly interactive and immersive scenarios and simulations. Google Glass takes simulations and eLearning scenarios to a whole new level. Learners will have the ability to participate in tasks, in real world situations, and on-the-job processes from a first person point of view. For example, if a corporate learner needs to know how to carry out a sales transaction using the company's new POS system, a Google Glass-based scenario can put them in the shoes of a cashier so that they are able to operate a virtual register and interact with a virtual customer, as if they were really on the sales floor. This also

helps learners to better understand the real world consequences of their decisions and actions, given that they can see, first hand, how every choice leads to a benefit or risk.

The second way is to improve learner knowledge assessments. Google Glass in eLearning is not a one-way learning street. Instructors and facilitators can monitor their learners' performance via live feeds. The instructor can step into the shoes of the learner using Google Glass, and make their own assessment regarding to the course or training by being able to see everything from the learner's perspective. So, it is easier to understand learning behaviors and give immediate feedback.

The third way is to provide quick and convenient supplemental information. Google Glass features a "Heads Up Display" (often known as the HUD). HUD can give students the chance to access supplemental resources while they are engaging in learning activities. As the first example, during a lecture or online scenario, a student can use Google Glass to go online to find information that can help them better understand the topic. As a second example, if a student is delving into a complicated task or process, he can look for a step-by-step guide that offers him the opportunity to boost his performance and absorb and retain knowledge for later use.

The fourth way is to take mobile learning to the next level. Google Glass in eLearning offers students the ability to access information on-the-go, hands-free, so that he can develop his skills and access a wealth of knowledge on the spot. In effect, students no longer have to use their smart phones or tablets to access courses because they can simply switch on their Google Glass to become active participants in the learning experience, either in listening to lectures while sitting in traffic, or in engaging in scenarios as they commute to work.

The fifth way is to develop detailed first-person tutorials. With Google Glasses, the students can look through the eyes of a trained professional or experienced instructor to get deeper understanding of how to perform a specific process. Google Glass can give students the opportunity to learn from the pros by viewing a first-person tutorial. Instructors or facilitators or subject matter experts can put on Google Glass and record what they are doing by simply telling the gadget to record a video, by voice while using their hands for something else.. The videos and pictures that have been captured by the pro can be uploaded to an app that has been designed for the course. The uploaded video can serve as an in-depth tutorial or walkthrough that students can view anytime and anywhere.

The sixth way is to provide on-demand learning, whenever it is needed. Students can have access to information and online resources when and where they need it the most. Best of all, they can do so discreetly, without customers or clients even knowing that they are venturing online or accessing a training course. They can remain focused and engaged with what they are doing, which means that it is an ideal tool for working environments. For example, if a sales associate needs to know more about a particular product that the organization now offers, they can simply access that module in the training program and get the data they need to close the deal.

The seventh way is to provide safe learning in hazardous situations. Google Glass in eLearning can add a level of safety. For instance, if an employee needs to know how to carry out a complicated or potentially hazardous task, they can access the information and resources they need to know. The employee can stay fully focused on the task at hand, while still learning all they need to know about the process.

III. SMART WATCH FOR ELEARNING

In addition to Google Glass, smart watch has also been used in eLearning. An example is in the article "E-Learning Through Smart Watches – Finding Possibilities" [5]. The ever evolving technology offers delivery platforms

for instructional designers to opt and provide most suitable learning solution products.

Smart watches will probably be the new trend in eLearning. Content developers must be aware and prepare for new delivering platforms. Students can learn while sitting under the tree. Students will become users of new technologies and change their living style in accordance to it. The new paradigm is of student-centered.

In addition to Apple watch, there are other smart watches. This trend will move further with new features and specifications to offer more and more applications in eLearning.

Smart watch has great potential in eLearning. However, its small screen size will make content development more difficult. Content designer will have to invent new creative ideas suitable for wearable technologies.

IV. WEARABLE TECHNOLOGY COULD BE USED IN CORPORATE TRAINING

Moment of need learning is crucial in corporate settings. It boosts performance, improves employee satisfaction, and increases retention rates. Therefore, wearable technology can be an invaluable corporate training tool. While smart watches and smart glasses, such as the Apple Watch and Google Glass, are known for their fitness tracking and personal assistant features, they can also be used to create interactive training experiences. The article "7 Ways Wearable Technology Could Be Used In Corporate Training" [6] suggested 7 ways:

1) Immersive Task Simulations
Wearable technology has the potential to take simulations and scenarios to a whole new level. Instead of just watching a scenario unfold on the screen, then pointing and clicking to venture down the decision paths, corporate learners can become a part of the action.

2) In-Depth Product Knowledge Training
Most product knowledge training materials consist of paper printouts or basic descriptions on the screen. It would be better not to have to read from the printout or thru the screen, and that can be done conveniently thru wearable technology. Employees could view three-dimensional examples of the product, from every angle, and tap on various elements of the item to view its specs and benefits. Employees would be able to fully explore every aspect of the product without even leaving the sales floor.

3) Instant Access to Manuals and Tutorials
There are times when employees need immediate access to corporate guidebooks, manuals, or tutorials that give them a step-by-step walkthrough of a specific task. That can now be done easily thru wearable technology. Also, IT support staff can troubleshoot a problem quickly and conveniently by using wearable technology.

4) Efficient Use of Company Resources
Wearable technology can significantly reduce training costs, as it cuts down on the number of scheduled training sessions needed to hold each year. Instead of spending days getting familiar with the products and services, new hires can view all of the information on their smart watches or glasses.

5) Real-Time Support Resources
If an employee needs support from a supervisor or manager, they can use wearable technology to get the help they need immediately. Video chats, instant messages, and emails are all accessible via smart devices, which means that employees can instantly address concerns and ask questions without taking time away from their job responsibilities.

6) Provide Immediate, Inconspicuous Feedback
Tech developers are now working on sensors and actuators that bring the all-important element of touch to wearable technology. Imagine that an employee is completing a training simulation and they choose a path that might lead to disastrous results. The device would then send them a little vibration or pulsing sensation to let them

change their actions right away.

7) Seamless Collaboration in the Workplace

Wearable technology is going to be an invaluable resource for collaboration right at the location or anywhere in the world. If they are in the middle of a transaction and need to know how to access a feature in the POS, they can ask a supervisor via instant messaging.

V. GOPRO CAMERA FOR E-LEARNING

GoPro camera may be considered a wearable and used for e-learning [7, 8], especially e-learning course to become a "divemaster". The student can start through eight knowledge development sections using a web-based system that lets him learn at his own pace.

Alternately or in addition, a student can take "Dive Theory Online" which is in eLearning mode step-by-step through dive physics, physiology, skills, equipment and environment, plus a Recreational Dive Planner (RDP) review. By successfully completing Dive Theory Online, you can get credit for half of the Divemaster Final Exam.

VI. CONCLUDING REMARKS

Wearable technology refers to gadgets that are incorporated into items of clothing and accessories which can comfortably be worn on the body. This paper presented 7 ways to use Google Glass in eLearning, smart watch for eLearning, wearable technology for corporate training, and GoPro camera for eLearning. Interested parties should search Google regularly for information on wearable technology and eLearning to use for the benefits of themselves, their organizations, and their countries.

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