Design Document
Getting the Most Out of Your BackChecker™

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This document describes the detailed design of the new course *Getting the Most Out of Your BackChecker™* needed to deliver the learning solution defined in in *Learning Needs Assessment for Active Posture Devices™ BackChecker™ Posture Trainer* (Weatherall, 2011a):

- scope of the project
- objectives
- topical outline
- instructional strategies
- strategies for overcoming potential barriers to learning
- course development
- course delivery
- administration and evaluation
- links outside of the course

Scope of the project

Goal

The goal of *Getting the Most Out of Your BackChecker™* is to help teach customers how to stop slumping using the BackChecker™ posture training device.

The learning needs, project stakeholders, and learning solution are described in *Learning Needs Assessment for Active Posture Devices™ BackChecker™ Posture Trainer* (Weatherall, 2011a).

Audience

The expected audience of this course includes all users of the BackChecker™ and Active Posture Devices™ sales and customer service representatives.

Objectives

Course objective

At the end of this course, customers will be able to correct their postural fault of slumping using the BackChecker™ and the associated self-care exercises.

Supporting objectives

At the end of this course, customers will be able to

1. Identify slumping posture.
2. Describe the effects of slumping posture on the body.
3. Identify the components the BackChecker™ and the maintenance kit.
4. Describe the operating principles of the BackChecker™ posture trainer.
5. Describe the safety issues involved in using the BackChecker™.
6. Prepare the BackChecker™ for use.

7. Wear the BackChecker™.
8. Describe the recommended training concepts.
9. Perform Brugger's postural relief exercises.
10. Perform basic user care on the BackChecker™.
11. Troubleshoot problems with the BackChecker™.

Topical outline

I.   Introducing your BackChecker™
    i. Slumping posture
    ii. Slumping posture and your BackChecker™
    iii. Components of the BackChecker™
    iv. Components of the maintenance kit
    v. Using your BackChecker™ safely
II. Preparing your BackChecker™
    i. Installing the battery and checking and reattaching the elastic spring
    ii. Testing the switch unit
    iii. Checking the harness
III. Wearing your BackChecker™
    i. Putting on your BackChecker™
    ii. Setting the switch sensitivity
    iii. Applying mounting tape to secure the shoulder straps
IV. Training with your BackChecker™
V.   Performing the postural relief exercises
VI. Caring for your BackChecker™
    i. Cleaning your BackChecker™
    ii. Maintaining the battery
    iii. Maintaining the elastic spring
    iv. Maintaining the harness
VII. Troubleshooting your BackChecker™

Instructional strategies

To accommodate the variety of learners expected to take this course, a broad, multisensory approach to instruction will be employed. The following table maps learning styles and instructional strategies to how they will be implemented in this course (adapted from Borich, 2004; Horton, 2000; as cited in Purdue, 2010).

How we learn	Instructional strategy category	Implemented instructional strategy
We learn by listening	Self-directed instruction	Demonstration and lecturette with supporting media
We learn by seeing	Direct instruction and self-directed instruction	Demonstration and lecturette with supporting media
We learn by exploring, modeling, researching, and practicing	Experiential learning	Practice, computer-marked quiz, and refection
We learn by reading	Direct instruction	Lecturette with supporting media

The following instructional strategies will be implemented:

- *Lecturette with supporting media (slide show)*—brief lectures accompanied by graphics and narration will provide learners specific information on a topic (Horton, p. 50; Piskurich, p. 199).
- *Demonstration (presentation)*— sequenced images will allow the learners to view an expert performing the skills required to use the BackChecker™ (Horton, p. 49; Piskurich, p. 198). The use of video is discussed below.
- *Practice exercises*—hands-on exercises in which the learners will be asked to practice performing the task shown in a demonstration (Horton, p. 110; Piskurich, p. 200).
- *Computer-marked quizzes*—the learners will complete non-scored quizzes after selected lessons to maintain interest and self-assess progress and achievement. Lesson quiz feedback will immediate, confirmative, and corrective. A scored course quiz will be included, which, upon successful completion, will provide a link to a course completion certificate.
- *Reflection*—as a linking activity at the end of practice lessons, the learners will ponder a rhetorical connecting question to provoke thought, consider what has been learned and how it can apply to their real-life situation (Brown, 2006, p. 182; Horton, p. 171; Piskurich, p. 200).

Sequenced image demonstrations will be used in favor of video demonstrations due to the difficulty and expense of creating high-quality video and the need for learners to review and practice specific procedural steps during initial learning and review.

All design shall be guided by the cognitive theory of multimedia learning and the learning principles defined by Clark and Mayer (2011) and Chickering and Erhmann's (1996) principles of good practice in e-learning.

Strategies for overcoming potential barriers to learning

This e-learning initiative will seek to identify and propose solutions for overcoming potential barriers to creating and maintaining a positive learning environment so that the learners will successfully fulfill the course objectives. The major mechanisms for overcoming these barriers are effective course planning and design, user interface design, and course support.

"Appendix A: Strategies for overcoming learning barriers" identifies strategies for overcoming common potential barriers to e-learning as they apply to this initiative. Of special note, this course will address the issue of accessibility to the extent possible given the limitation of the software being used to develop and present the course as described below in "Tools required for producing and participating in the course."

Course development

Design time and milestones

Based on the expected course length of 45 minutes, the estimated development time for this self-paced e-learning course is approximately 100 hours (Piskurich, 2006, p. 136) plus beta reviewer time.

The development milestones are as follows:

1. Course objectives completed and reviewed: end of week 1.
2. Course lesson development completed: end of week 5.
3. Web and paper course evaluation surveys completed: end of week 6.
4. Alpha release: end of week 7
5. Rework complete and beta release: end of week 9.
6. Beta release review completed: end of week 10.
7. Initial release completed: end of week 12.
8. Customer Service preparations completed: end of week 13.
9. Initial release uploaded to the company website: end of week 14.

Who is involved

All design and production activities will be carried out by the product developer and chief instructor, Vic Weatherall, D.C. Beta testing will carried out by volunteer testers familiar with web- and computer-based training and assigned CS representatives. Ongoing assistance will be provided by the project stakeholders.

Tools and facilities needed to create and host the course

Existing company hardware and software including Articulate® Rapid E-Learning Studio Pro '09 along with Microsoft® PowerPoint® 2010 will be used to create the course and publish it to an interactive Adobe® Flash® file so that it can be played on the learner's computer. Templates and the interactive activity capabilities of Rapid E-Learning Studio Pro '09 will be used to the fullest extent possible. Still pictures will be taken using the company digital camera and edited using standard photo manipulation software.

The Adobe® Flash® file format will be used because of its high degree of availability on learner computers (Millard Brown, 2010, cited in Adobe, 2011a). Efforts will be made to make content as accessible as possible given the limitations of the tools as described in Kineo's (2008) *Rapid Guide: How to Meet Accessibility Guidelines for Rapid E-learning*.

The course will be hosted on the company's existing website host's servers and be accessible at all times. This course will be the latest available version. No learning management system (LMS) is required at this time. The course will be configured to automatically send email with the course quiz and survey results to Customer Support (CS). Alternatively, learners will be able to print and send their survey results by email, fax, or regular mail. The results will be analyzed as part of the ongoing course and product improvement activities.

For the USB flash drive deliverable, runtime versions of Adobe® Flash® Player 10 (or later) (Adobe, 2011b) and Adobe® Reader® will be included in case it is not already installed on a learner's computer or they are out of date.

New versions of this course will be created and shipped with new deliveries; however, new USB flash drive course versions will not be shipped to existing customers unless a specific request is made through CS.

Course delivery

Method

This self-paced e-learning course will be delivered over the internet or USB flash drive (supplied). For post-training quick reference, learners can revisit the course or use the supplied document *The BackChecker™ User Guide* (Weatherall, 2011b). The course will not be designed to run on handheld devices.

The major course objective of correction of slumping (see below) cannot be directly assessed by Active Posture Devices™ because of privacy issues and the implication of a medical diagnosis being rendered by the reviewer. This will be solved in part by visual self-assessment compared to a defined "optimal posture."

Materials to be delivered

This course will be delivered over the internet from the company website or by the USB flash drive delivered with each unit. *The BackChecker™ User Guide* will also be supplied with each unit.

Course evaluation will be performed by way of a scored course quiz and an electronic survey form included in the course. The learner may return the results to CS by email or standard mail.

Tools and facilities needed to run the course

To run the course, learners will need a computer with a major internet browser, Flash® Player 10 (or later), and Adobe® Reader® installed. The minimum stated requirements for Flash® Player 10 running on Microsoft® Windows® are as follows (Adobe, 2011c): "Intel Pentium 4 2.33GHz, Athlon 64 2800+ or faster processor (or equivalent) with "128MB of RAM" and "128MB of graphics memory." Specifications for machines running Mac OS X and Linux® and Solaris™ are provided at the same reference.

The computer must have a modern monitor (capable of clearly displaying an 800 X 600 pixel image along with the viewer) and speakers or headphones. It must also have an internet connection or a free USB port. For learners with poor quality or no internet access, a USB flash drive loaded with the current version of the course will be included in the product package. Runtime versions of Adobe® Flash® Player Adobe® Reader® will be included on the USB flash drive. As also stated above, the accessibility features of Articulate® Presenter and Adobe® Flash® as well as the course content design will be used to provide the maximum realistically achievable standards for accessibility; however, they are not a mandatory design requirement.

Training time

This is a self-paced e-learning course; however, the expected total learning time (uninterrupted) is approximately 45 minutes. This does not include additional time the learner may take to practice the activities or the time taken to complete the course and training evaluation surveys.

Problems and opportunities

Learners must have access to a computer with speakers and an internet connection or free USB port. If learners have technical problems accessing this course, they will contact CS.

Improvements or changes for both the BackChecker™ posture trainer and user guide may be identified during the preparation of this course and ongoing training.

Administration and evaluation

Learners will be supplied with the course on a USB flash drive shipped with each unit or they may access it on the internet from the company website. *The BackChecker™ User Guide* will also be supplied with each unit.

As previously identified, the major course objective of correction of slumping cannot be directly assessed by Active Posture Devices™ because of privacy issues and the implication of a medical diagnosis being rendered by the reviewer. This will be solved in part by visual self-assessment compared to a defined "optimal posture."

The physical skills involved in working with the BackChecker™ cannot be assessed by direct observation. However, Horton (2000, p. 43) suggests specific descriptions of what the learner will feel while wearing the device may be helpful to reinforce learning.

Learner technical knowledge will be self-assessed by non-scored quizzes embedded in the course lessons. These quizzes will provide detailed feedback on a question-by-question basis. There will be a summative course quiz with questions drawn from the lesson quizzes.

Upon successful completion of the course quiz, the learner will be provided a link to the course completion certificate. All quizzes may be taken an unlimited number of times.

Course and training evaluation will be performed by way of learner-submitted course quiz results and electronic surveys included in the course. Submitted results will be collected and acted upon by CS. These activities are described in *Implementation and Evaluation Plan: Getting the Most Out of Your BackChecker™* (Weatherall, 2011c).

Links

Customer Support must be prepared to help solve access problems for the internet and USB flash drive deliveries of the course. In addition, it must process test, course quiz, and evaluation results and forward them to the course developer. Any identified issues and suggestions for changes to the course, user guide, and the BackChecker™ will be acted upon as indicated.

The initial implementation will be in English with follow-on course delivery in French.

The content will be based on *The BackChecker™ User Guide* and existing research documentation describing the operating principles of the device.

Appendix A: Strategies for overcoming learning barriers

The following table identifies strategies for overcoming common potential barriers to e-learning as they will be applied to this project (adapted from Australian Flexible Learning Framework, 2009, pp. 17-21; Broadbent, pp. 186-189; and Mungania,2003).

Barrier to e-learning	Strategy to overcome barrier	Implementation
Irrelevant content that does not meet learners' expectations	Know the target audience and their expectations	A detailed course description will be provided so that learners know what to expect. A learning needs assessment has been conducted as part of the initial instructional design analysis.
Unprepared or lack of appropriate skills and knowledge	Provide training and development opportunities	Information will be provided on how and why to use the course.
Low self-efficacy or anxiety about one's ability to be a successful e-learner	Strategies for improving learner self-efficacy	Simple, non-scored lesson quizzes with immediate feedback will enable positive reinforcement and nurture self-efficacy. Successful completion of the course quiz will provide a link to the course certificate. Clear, positive instructions (on the course quick-start guide and the course introduction) will help get the learners interested in starting the course.
Preference for other instructional delivery techniques	Cater for multiple learning styles	The course design will accommodate multiple learning styles using multimedia and hands-on practice. Full text of the narration will be immediately available.
Content inconsistency, illogical, and unclear course design	Pay attention to course design	The course will have a lean, relevant information design with simple instructions and clearly identify supplemental information. The writing level of writing will be appropriate to the expected learner profile. The course will be updated when errors are found (the company website will always have available the latest version of the course). The course layout will be consistent throughout.
Confusion from instructions and navigation procedures	Instructions must be clear and logical	Clear navigation instructions will be provided at the beginning of the course.

Barrier to e-learning	Strategy to overcome barrier	Implementation
Confusion from instructions and navigation procedures *(continued)*		The general learning process will be explained as part of the introduction. A Help screen will be accessible at all times. A graphical course map will be provided.
Information overload and discrepancy in requirements	Watch for information overload	The appropriateness of all the content will be reevaluated periodically through learner to CS feedback and through the project planning cycles.
Learners are not aware of their status and progress	Follow-up during and after training	Learner progress will be recorded and displayed.
Poor course quality, low expectations, and little rigor	Quality must not be compromised	Course development will follow standard instructional design techniques. Course content will be of high quality to keep learners motivated. Course content and activities will be based directly on the identified course objectives. Hands-on practice activities that require higher level learning skills such as analysis, synthesis, and application will be provided. The course will be evaluated thoroughly in pilot testing and on an ongoing basis through learner feedback and project cycles. The most recent version of the course will reside on the company website; however, new USB flash drive versions will not be distributed unless a specific request is made through CS.
Translating knowledge into action	Transfer of training	Opportunities will be provided for learners to apply what they have learned and close the gap between knowledge and action.
Inappropriate or tests that do not add value	Tests and assessments	Simple, non-scored lesson quizzes with immediate feedback will be provided. The test instructions will be clear. Course quiz questions will be drawn from the lesson quizzes and include only the most critical topics. Successful completion of the course quiz will provide a link to the course certificate.

Barrier to e-learning	Strategy to overcome barrier	Implementation
Inappropriate or tests that do not add value *(continued)*		The order in which questions are presented will match the content covered.
Unreliable technology and inconsistent access	Access to course content	To overcome possible poor quality internet connection, the course content and a runtime copy of Adobe® Flash® Player will be included on a USB flash drive delivered with each BackChecker. A major internet browser and the Adobe® Flash® Player are required to run the course and submit results.
Inconsistent and poor navigation	Course navigation	A graphical course map and a table of contents will be provided. Continuous navigation thorough the course will be enabled. Any external links will be tested prior to initial and update release. A search engine will be provided.
Technological limitations	Technology choice, capabilities and support	CS will provide technical support for learners experiencing problems with the course content and the course itself. CS-IT may assist learners in dealing with failure of their equipment, but will not be responsible for them. CS-IT will provide technical and learning support to the company. The CS section of the company website will provide learners a mechanism for users to report and track the resolution of technological problems. A frequently asked questions (FAQs) page will to published on the company website and updated regularly to reflect new information. Standard CS-IT procedural documentation will be created to guide CS activities.

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