

# Learning Needs Assessment for Active Posture Devices™ BackChecker™ Posture Trainer

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## Company profile

Active Posture Devices™ of Merrickville, Ontario, will produce and distribute posture training aids. These devices will help relieve the pain, dysfunction, and poor physical appearance associated with the common postural fault of slumping.

The posture training devices will be produced and shipped on demand as stand-alone units with maintenance kits and *The BackChecker™ User Guide* (Weatherall, 2011a). These devices will be sold over the internet and in orthopedic supply stores. Customer contact will be through the internet, postal services, and by telephone. This geographically remote relationship necessitates a strong understanding of how to use the device to prevent or minimize loss of revenue to due returns and excessive customer support (CS) as well as damage to future sales and company image.

## Company learning needs

As of this writing, the devices have not yet gone to market. The development stage is nearing completion with manufacturing and preliminary sales expected to begin within 1 year. The focus of recent activities has been usability and clinical trials to ensure that the devices are effective and that they will be used as expected.

## Data collection methods

These devices have been in development for the past 3 years and are now at the user trial stage. Two types of trials were conducted. These are described below.

The first type of trial was a general usability trial. This eight-person trial was conducted by the developer to determine if that the device was fit for purpose and that the instructions for wearing and maintaining the device were appropriate. The participants (all adults) were supplied with the complete unit with no other instruction. Included with the units were survey forms containing questions requiring a visual analog scale response: 1 (worse) to 10 (better). The following items were of particular interest to this learning needs assessment:

- Was the user guide easy to follow?
- Was the user guide comprehensive?
- Did the user feel better after wearing the device for the trial period?
- Did the user guide answer basic care and maintenance questions?

Direct interviews were conducted with all users when they returned the devices. The main emphasis was on the ease of use of the device and compliance to the training regime described in the “Tips for using your unit” section of the user guide.

The second type of trial was a pilot clinical trial performed at a university in the United States to investigate the conceptual validity of the device (operant conditioning using positional biofeedback) and operational validity (correcting the postural fault of slumping and its attendant symptoms).

The participants (university students) were provided with specific verbal and physical instructions to ensure the training regimen was performed as required. This study discussed the theoretical operation of the device and included a small study of the use of the device including a subjective questionnaire similar to the one described above but expanded to include specific pain scale ratings. Before and after photographs against a posture grid were also taken. Direct interviews were also conducted at the end of the treatment period.

## Results

The results of the data collection activities are summarized below:

- All trial participants found the device easy use and effective in helping them correct their slumping over the short term.
- During the usability trial, the majority of the participants did not follow the training regimen. When asked why, their responses indicated a lack of understanding of the importance of the training regime in correcting slumping.
- During the usability trial, the majority did not attempt to carry out the requested basic maintenance. When asked why, their responses indicated a simple lack of need to perform these activities because the devices did not fail in any way. One participant who did change the spring performed the operation incorrectly.
- During the clinical trial, the only negative comment from one participant who stated that sitting up straight was uncomfortable in general. While this reinforces why postural training is needed, it may also reflect a lack of understanding of the symptoms likely to be experienced during initial training.

These results indicate that, given adequate instruction, the device will be used as intended, it will be effective, and customer satisfaction will likely be high. Conversely, lack of adequate instruction (using the user guide alone) may pose commercial concerns including product return and increased CS activities due to lack of product effectiveness and product failure due to lack of proper basic maintenance. These problems will likely be exacerbated by the geographically remote relationship between Active Posture Devices™ and its customers.

## Identified performance gaps and learning needs

The indicated performance gaps are listed below.

### Current performance

Fails to follow the prescribed training regimen

Fails to correctly maintain the device

Fails to understand the potential adverse effects

### Desired performance

Follows the recommended training regimen (knowledge)

Performs basic user maintenance (skill) and as when required (attitude)

Understands the potential adverse effects and why they may occur (knowledge)

The identified learning needs are as follows:

- Learn the recommended training regimen.
- Learn basic user maintenance.
- Learn the operating principles of the device and understand the potential adverse effects.

The identified non-learning need is to actually perform the recommended basic maintenance as required.

The Mager and Pipe Model (Do You Have a Learning Need Tutorial, n.d.) for determining learning need also clearly indicates that formal training is required for the learners. The learners will likely be learning the skill the first time by using the e-learning course or after a quick scan of the user guide; therefore, the model indicates a short path to “Arrange for Formal Training.” In addition, participation in the training will always be voluntary.

Russell (2006) and Piskurich (2006, p. 10) both state the need to link learning needs with business objectives. The linkage here is direct and clear: better training results in better outcomes and lower risk of product return and lower utilization of CS resources. When combined, these factors will increase company profitability and prestige.

## Project stakeholders

This project will rely on the ongoing input from several major stakeholders:

- Company (project) management—provides control and oversight of all aspects of the initiative.
- Information technology (IT) representative—provides assistance with the software and hardware installation, course development and support, and help desk activities (Pervenanze, n.d., p. 3-4).
- Customer Support (CS) representative—provides customer support for the BackChecker™ and the proposed e-learning course.
- Subject matter expert (SME)—provides knowledge and advice on the technical issues of the design and use of the BackChecker™.
- Clinical researcher—provides input from the university-based clinical trial of the BackChecker™.
- Learner representative—provides feedback on the effectiveness of the BackChecker™ and training.

The e-learning materials will be produced in-house as far as practicable with overall project management under the direct control of the author. Therefore, this stakeholder will not be discussed further. Three qualified individuals have been enlisted as key stakeholders to this e-learning initiative: a combined CS-IT representative, a combined SME-researcher, and a learner representative.

Only by addressing stakeholder needs will the project be successful. The following table summarizes their functions and stated needs.

Stakeholder	Function	Needs
Company (project) management	Provides control and oversight of all aspects of the initiative.	A well planned and executed e-learning initiative that is effective, cost-effective, and has low CS-IT impact.
CS-IT representative	CS provides customer support for the BackChecker™ and the proposed e-learning course.  IT provides assistance with the software and hardware installation, course development and support, and help desk activities.	A minimized workload regarding support related issues involving device failures and returns and customers seeking clarification on how to use the product.  A better understanding of how the device works and how to use it with specific emphasis the use of video demonstrations.

Stakeholder	Function	Needs
SME- Clinical researcher	<p>SME provides knowledge and advice on the technical issues of the design and use of the BackChecker™ in addition to that provided by the BackChecker™ developer.</p> <p>Clinical researcher provides input from the university-based clinical trial of the BackChecker™.</p>	<p>Better research trial project for any future trials outcomes and better understanding of how the device works and how to use it including video demonstrations.</p> <p>Better trial enrollee education on the same issues to enable greater compliance.</p> <p>A good quality and easy to use e-learning course for the benefit of this stakeholder and the enrollees.</p>
Learner representative	Provides feedback on the effectiveness of the BackChecker™ and training.	<p>A better understanding of how to use and care for the device to achieve better personal outcomes.</p> <p>A good quality and easy to use e-learning course including video demonstrations.</p>

The stakeholders are key assets because they will influence the approach to this project:

- Up-front and ongoing frank communication throughout the planning, development, implementation, and assessment cycles will help identify the most efficient and effective instructional strategies and activities concerning their areas of interest while creating a positive project environment.
- Early development of policies, procedures, and evaluation instruments will help measure and deal with customer feedback and, in turn, help improve the e-learning course and BackChecker™ itself, thereby reducing CS-IT workload, reducing product return, and improving self-help outcomes.

## Learner profile

Due to the nature of the product and its distribution, learning will usually take place in the customers' homes or in their healthcare providers' offices by direct instruction (far less likely). Customers will include children and adults who require training to relieve the pain, dysfunction, and poor physical appearance associated with the common postural fault of slumping. They are likely to have the following learning characteristics:

- Their expected motivations are the correct wearing of device to address their postural problems and validate their purchase of the device.
- They are self-selecting or are referred by their healthcare providers.
- They are unlikely to have used similar devices in general.
- The harness is based on that of a common brassiere; therefore, women will be familiar with the general method of putting on the device.
- The expected learner age is 12-75 with standard reading levels and with children being assisted by adults.
- The general learning styles are likely to vary widely.
- The languages of communication will be English and French with English being the initial implementation.

In all likelihood, the learners will be new to e-learning and will have low to high ability in using computers and the internet. They may have low quality internet access or none at all. In addition, they may have sensory and motor impairments.

Required resources needed to support learning include a computer with speakers or headphones and, if possible, a high speed internet connection.

## Learning solution

The geographically and temporally separated nature of Active Posture Devices™ and its customers as well as the expected mechanism of distribution necessitates a self-paced e-learning solution (Broadbent, p. 20; Piskurich, p. 177). This solution will center on the major learning needs identified in “Identified performance gaps and learning needs” above.

The course content will be based on the concepts described in *The BackChecker™ User Guide* supplemented by additional material on posture and bolstered by rich media. The anticipated training is expected to take the average learner 30-45 minutes to complete.

A self-paced solution will also benefit the learners because it can be reviewed and the activities practiced as desired (Piskurich, p. 177). The course will be delivered over the internet from the company’s website and on the USB flash drive that will be delivered with each product package. The USB flash drive is needed in case learners do not have quality access to the internet.

## Cost analysis

No accurate cost-benefit or return on investment calculation can be performed at this time. The overall estimated production costs cannot be calculated until the basic learning modules have been designed; however, a rough estimate of development time based on industry standards is approximately 100 hours (Piskurich, p. 136) plus pilot tester time.

The general cost factors are as follows:

- Using only in-house resources will minimize development costs.
- Using the existing basic technical content from the user guide and the principles of operation outlined in the clinical trial will greatly decrease development costs.
- The training will be delivered by in-house produced and delivered media, the company website, or both, thereby minimizing distribution and delivery costs.

The ultimate benefits of learning will be preventing outright return of the device, minimizing CS response time, and maintaining company image.

The linkage of the learning objective in this initiative with the company’s business objectives is direct and clear: better training results in better outcomes and lower risk of product return and lower utilization of CS resources. When combined, these factors will increase company profitability and prestige. The potential consequences of not proceeding with the initiative may be severe in the long term.

## References

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