

Keep Running Model

An Instructional System Development Model



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IDE 632 – Instructional Design and Development II

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Introduction

Running has become a sport for many people. Some individuals are even required to run for their profession, others run to remain fit and healthy, and some even do it for fun. Regardless of the reason for running, injury prevention remains a critical path in every runner's life. To remain injury free, every runner needs to ensure they are running with proper biomechanics, also known as running form or running economy.

To facilitate this process, professionals and practitioners use the gait analysis and other analysis tools to evaluate an individual's lifestyle as a method to identify any possible abnormalities that may exist to improve running economy. This will allow runners to identify inefficiencies in running economy and incorporate a rehabilitation program or an individual running program that will help improve running economy and prevent future injuries.

As this need currently exist for many members of the United States Army and many recreational runners, as well as a reference for those who plan to adopt running in their future life styles, the Keep Running Model will serve as the framework for Instructional Designers to develop future instructions and materials for runners to improve running economy and remain injury free.

Model Background

Context

The purpose of this project is to develop a model to assist in closing a need or gap that currently exists in the Army and for recreational runners. This model will serve as the framework to develop future instructions for current and future runners that are either injured, have been injured, or plan to incorporate running in their lifestyle. The model will assist runners in improving running economy and remaining injury free during training or running in general. The components of this model will be broken down in four stages, focusing on inputs, processes, and outputs. The ADDIE model will be used as the primary framework in the construction of the Keep Running Model.

Systems

The Keep Running Model is an instructional system development (ISD) model that uses a systems approach methodology to assist with identifying the root cause of injuries in runners. For individuals to understand the actual problem, they must understand the suprasystems and sub systems that affect the current problem as well. This model serves as a tool to assist in reducing current injuries that are negatively affecting an individual. For example, individuals that are injured due to their own lack of knowledge and skills or of their leaders, miss or are given work restrictions. This causes individuals to miss work, possibly become non-deployable, and require additional medical treatment. Figure 1 shows a visual representation of other systems that are interconnected with the Keep Running Model.

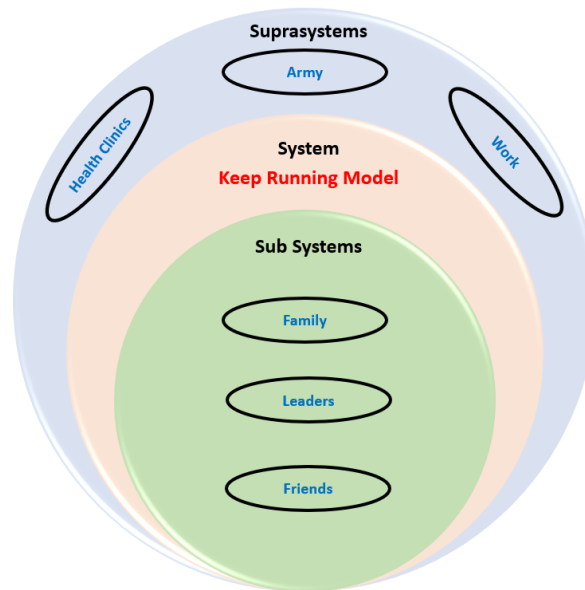


Figure 1

There are several subsystems that play a critical role in an individual's lifestyle. Family directly influences an individual's behavior. For example, their activity level, the way they eat, and the stresses they develop. Furthermore, leaders can cause injuries if they themselves lack the knowledge and skills to provide proper instructions and training. Lastly, friends (other runners

or non-runners) can also positively or negatively influence an individual. A few of the suprasystems that are interconnected with the Keep Running Model are the Army, Health Clinics, and an individual's job. Injuries directly affect an individual's work and can cause them to schedule recurring medical appointments, which can lead to missing work or being given work restrictions.

Purpose

The primary purpose of the Keep Running Model is to provide an instructional intervention for runners that currently lack the knowledge and skills for running. This model will assist in providing learners (runners) instructional videos, job aids, and training handouts that runners can utilize to improve their running economy and remain injury free. Therefore, assisting with closing the current gap that exists for many members of the United States Army and many recreational runners.

Key Personnel & Their Roles

Role	Description of Role
Learners: <ul style="list-style-type: none"> ✓ Current Runners ✓ Future Runners 	In this ISD model there are two types of learners, current runners and future runners. Current runners are individuals that have a history of running but lack the knowledge and skills of the key fundamentals of proper running economy. These individuals tend to have a history of running injuries. Future runners are individuals that have no or limited experience in running and lack the knowledge and skills to remain injury free and avoid injuries while running or training.
Instructional/Training Designer/Developer	Responsible for coordinating with the subject matter expert and developing the appropriate instructions (videos, tutorials, handouts, job aids, etc.) needed to close the need "gap" of the client.
Subject Matter Experts (Coaches, Trainers, Teachers, etc.)	The subject matter expert plays a critical role as he/she directs/facilitates individuals through the "Keep Running Model". These individuals are the ones that identify the need "gap" and direct the client to certain assessments for a thorough analysis to be completed. They will direct and facilitate everyone through each stage of the model.

Environment

Both the Army and recreational runners come from all around the world, they train in various types of physical environments that include weather and terrain differences. The model is designed to create training and instructional materials that are projected to target an individual's needs, depending on their areas of weakness or difficulties. Rehabilitation programs and individual training plans are developed to focus on improving an individual's needs, therefore every program or plan can vary, depending on the area of focus for improvement.

Training will focus on individual learning; the instructional materials will be available as needed for individuals to view and complete. The materials will be available and accessible through the world wide web. The method of delivery for these instructional materials will be primarily instructional videos that explain and demonstrate a specific area of focus. Depending on the individual's needs, they will be required to complete the recommended instructional videos.

Intended Audience

The intended audience for this model is focused on two groups of individuals, current and future runners. Current runners are the individuals that are currently serving in a profession that requires individuals to run a certain distance or time and individuals that run for leisure or as a sport. Future runners are individuals that intend to run in the near future for whatever their reasoning maybe. These can be future military personnel or someone that has an interest in running for fitness or leisure. Below is a list of both current and future runners that can benefit from using this model.

Audience	Description
Soldiers (current)	These individuals are personnel that are serving in the Army. This includes all personnel serving, regardless of age, gender, or pay grade.
Recreational Runners (current)	These include individuals that enjoy running and run for fun or for fitness.
Soldiers (future)	These are individuals that intend to join the military in the near future and would like to develop the basic fundamentals for proper running economy.
Recreational Runners (future)	These are runners that have a vested interest in running and would like to develop the basic fundamentals for proper running economy.

Rationale for Model

Throughout this course (IDE 632), students have had an opportunity to develop an understanding of the various Instructional System Development models that currently exist in the world today. A variety of experts and practitioners developed these models, and usually for a specific reason, project, or audience. According to Gustafson and Branch (2002), Instructional Design models serve as a tool for analyzing, designing, creating, and evaluating guided learning. Therefore, the Keep Running Model was created and developed as a tool to analyze current and future runners, design a rehabilitation or training program, develop individual training plans, execute these plans, and evaluate individuals to provide feedback for each individual. Through this process, individuals will be required to view and complete the provided instructional materials during the execution phase of this model.

Model Assumptions and Constraints

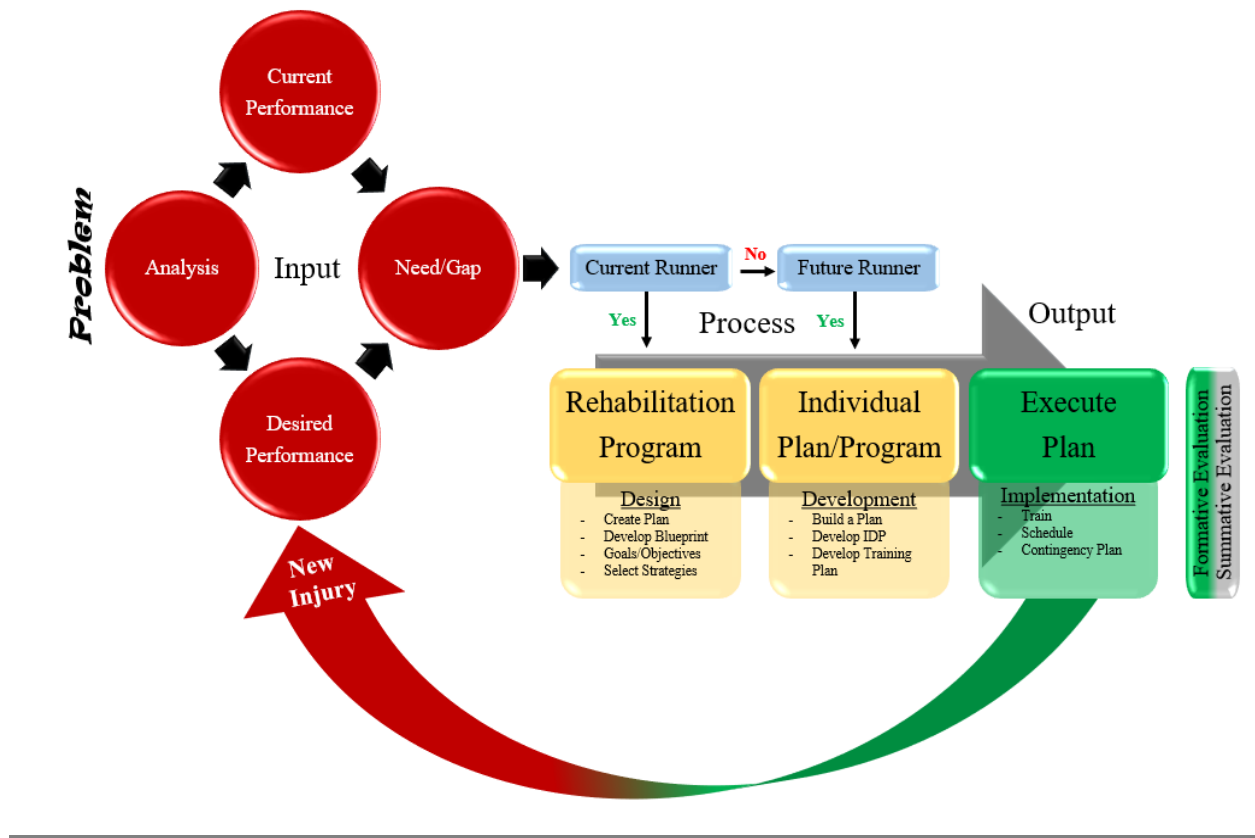
There are many assumptions and constraints that exist with the Keep Running Model. In order for this model to work, the following assumptions are made:

1. Model is intended to be used by current and future runners. If an individual does not have a desire to run, this model will not be useful for them. Runners will benefit greatly from this model.
2. Individuals using this model are expected to have a general understanding of running. Without the basic knowledge and terminology of running, this model will be difficult to understand and use.
3. Videos/tutorials and developed exercise plans are already available for individuals in need to use. Many instructional videos exist on the world wide web. During the design stage, the required materials will be gathered and put together for each individual to focus on each individual's needs.
4. Individuals that use or seek this model are self-motivated and will demonstrate enough individual effort to follow and complete the given materials and plans.

The following are some of the constraints with the Keep Running Model:

1. The only purpose for this model is to design and develop instructional materials for an identified problem for runners. Runners that do not have an identified performance problem, will not benefit from this model.
2. This model is intended to be used by personnel that are familiar with running, it will be difficult to use by personnel with limited or no knowledge/experience with running.
3. Evaluation can be difficult. Observable evaluation can be challenging as this requires the evaluator to monitor an individual conducting a training session. This will require a lot of time and effort from the evaluator.
4. Runners need to return often (for evaluation) to ensure exercises/plan is working. This requires continuous follow-up by the individual and the subject matter expert.
5. Ongoing process, plan changes as fitness changes. Requires individuals to be monitored periodically and often to revise plans as fitness either increases or decreases.

The Model



Keep Running Model

Analysis and Design of Model

Management of Instructions

The learning architectures that were taken into consideration for the Keep Running Model, are the directive approach as proposed by Clark's cognitive strategies and Merrill's first principles.

Clark's Cognitive Strategy

The directive approach is appropriate and best suits the audience of future runners. The reason this approach fits this audience is due to the limited knowledge that this audience will have. This will allow the instructions to be presented in small sizes and it will also allow for the learner to ask questions as needed and the appropriate feedback given. As these learners become more experienced runners, they will be able to transfer to the current runner's approach.

Merrill's First Principle

Merrill's first principle is the best and appropriate strategy for current runners. The reason this approach fits this audience is due to the amount of knowledge and experience this group has. Although each individual's knowledge can be different, this group is looking to correct a real-world personal problem. As this group of learners receive new knowledge, they can activate previous knowledge to allow the learner to store the new information. The videos/tutorials that will be presented, will demonstrate the correct performance of the exercises and running economy. At the completion of the instructions, the learners will be able to apply the new knowledge within their individual training plans and training sessions, improving running economy. As the learners acknowledge and reflect on their improvements, they will integrate the new knowledge within their training, thus reducing and preventing future injuries from occurring.

Assessments

Assessments play a critical piece in ensuring the goal and objectives are achieved and provide a means to determine if the learner achieved the desired outcomes. In the Keep Running Model, this will be achieved in the evaluation phase. The client will be assessed using a number of assessments, to include evaluations, to ensure the learners have adopted the exercises and techniques to improve running economy. These tools and instruments will be discussed later in this report.

Model Components

The Keep Running Model is a model focused for improving performance for current and future runners. This model has four stages, which include several things that need to occur for the model to be successful. Below is a brief description of each stage.

Input

Stage 1 (Analysis) – The first phase in this stage of the ISD Model will begin with a thorough needs assessment/front-end analysis to gather the required data needed to improve running economy, which prevents running injuries. The Analysis will either confirm optimal running

economy or it will serve as a tool to correct improper running economy. This specific stage will target the current performance of an individual and identify the performance gap “need” that may exist. In this stage, the process for both current and future runners remains the same. Both types of runners will be required to conduct several assessments for a thorough front-end analysis to be completed. This will ensure the root cause of the problem is identified. Upon completion of the front-end analysis, current runners will be directed through the design phase and future runners will be directed to the development phase. The rehabilitation program is targeted towards individuals with previous injuries, therefore there is no reason for future runners to go through this phase of the ISD model.

Process

Stage 2 (Design and Development) – In the design phase the data and results gathered from the front-end analysis will assist in designing a rehabilitation program for current runners that will serve as a guide in developing an individual plan. In this phase is where the cause analysis will occur from the results of the front-end analysis. In the event the data and results show great running economy, this stage will validate proper running economy and will direct these runners to stage four if needed. In the development phase the individual development plan will be created focusing on the weaknesses/abnormalities/improvements needed to correct improper running forms. In this phase, the focus will be in developing possible solutions to improve running economy based on the results of the cause analysis. This plan will focus on developing certain muscles throughout the lower extremities and core, in order to improve running economy. In this stage, is when the videos, tutorials, job aids, or handouts will be introduced to the runner.

Output

Stage 3 (Implementation) – This is the execution phase. This is where runners will implement their individual development plan. This stage is critical as this is the primary phase where feedback is sent back to the developer in order to revise, refine, or improve each individual plan. In this stage, is when the videos, tutorials, job aids, or handouts will be used and viewed by the runner as needed to learn, perform, and practice the exercises/techniques to correct improper running economy.

Stage 4 (Evaluation) – In the final stage of this ISD Model, will serve as two parts. The first is the formative evaluation, which begins in stage 3 as the developer receives feedback from the client. This is the initial evaluation to ensure each individual plan fits each client. If needed in this phase of the stage, the client may need another assessment prior to making changes for their plan. The second part will be the summative evaluation that will be conducted at the conclusion of the individual development plan. The summative evaluation is twofold, the first will be at the conclusion of the individuals training plan to see if the desired outcome was achieved. The second part will be conducted with a survey approximately 12 months after the completion of the program. This part is intended to collect data on the program and if runners remained injury free while improving in their training. These results will be used to refine and improve the Keep Running Model. This timeline will sometimes change as each plan can vary in length. This stage can also direct clients back to stage 1 if a new injury or abnormality has been identified

during the monitoring/evaluation of the individual or as a future runner becomes a current runner and experiences an injury.

Tools and Instruments

Below is a list of tools and instruments that are available to use during stage 1 of this model and to assess individuals if they have achieved the desired outcome. These assessments will assist the instructional designer in identifying the root cause of the problem by conducting a thorough front-end analysis. The results of the analysis will play an important role in designing and developing a program or plan for the client. It is best to administer every assessment in the table below; this will ensure the appropriate instructional intervention is achieved.

Assessment	Explanation
<i>Body Composition Assessment</i>	The Bod Pod is used to determine an individual's body composition. The Bod Pod measures the weight and volume of an individual to calculate an individual's body fat percentage.
<i>Metabolic Assessment</i>	This assessment is used to measure an individual's energy expenditure. This test will be able to tell an individual how many calories are used by the body on any given day. Does not calculate/include workout calories. This will help with the client's nutrition and recovery.
<i>Cardiorespiratory Fitness Assessment</i>	Also known as the VO2 max test, it is used to measure an individual's maximum amount of oxygen they can utilize during exercise. Conducted on a treadmill with a breathing device. Will assist in developing the intensities of each workout for the client.
<i>Muscular Fitness Assessment</i>	Strength and endurance exercise conducted to measure an individual's level of strength and endurance. This will help pinpoint areas of weakness or muscles that are vulnerable to injuries.
<i>Flexibility Assessment</i>	Ability to measure an individual's range of motion, limitations, imbalances, or instabilities. This will assist in developing the appropriate exercises/techniques to increase flexibility.
<i>Gait Analysis</i>	Assist in identifying any improper biomechanics an individual has while walking or running.

Instructional Goals and Objectives

There is one overall goal of the Keep Running Model. In an effort to achieve this goal, there are four learning objectives that every runner must achieve. Depending on the individual's needs, the instructional materials may vary to ensure every runner is able to achieve each learning objective and the overall goal. The decision for which instructional materials (tutorials, handouts, etc.) will be completed during the process phase of this model, which is stage 2.

Instructional Goal

Runners should be prepared and able to improve their running economy, avoid pain, and prevent injuries while running.

Learning Objectives

1. Runners will be able to identify any improper or abnormal running economy.
2. Runners will be able to explain the different types of strengthening exercises to improve running economy.
3. Runners will be able to compare and contrast the various types of runs for training.
4. Runners will be able to demonstrate the fundamentals in improving running economy.

Communication and Diffusion Plan

Communication is critical in implementing any plan. Change is inevitable when introducing some sort of training or instructional intervention. Recognizing and planning for this early will assist in ensuring the change does occur as intended. In an effort to increase the successful implementation and adoption of change, Don Ely's eight conditions of change will be used.

Dissatisfaction with the status quo

The Keep Running Model was created for current and future runners that lack the knowledge and skills for improving running economy and remaining injury free. Clients are runners that have a desire to change their current training and gain the knowledge and skills to improve running economy. These individuals understand there is a need for change and are willing to accept the change. This is what drives an individual to use this model.

Sufficient knowledge and skills

In order for the client to be able to adapt to the developed plan, each individual needs to have the sufficient amount of knowledge and skills to execute the developed plan. Failure to have the necessary knowledge and skills will only lead to frustration and possibly failure to improve running economy or causing additional injuries. Therefore stage 2 is critical and will ensure the clients have the needed knowledge and skills to successfully execute the plan.

Availability of resources

One of the biggest challenges that may interfere with using this model is the availability of resources, which begins with the analysis. The client will need to conduct various assessments

to conduct a thorough analysis, this can be done professionally in either a university laboratory, clinic, or other locations that offer these services. These assessments are sometimes available in department stores that specialize in running shoes like Fleet Feet, which also offer a 3D foot scanning. Depending on the location of the client, will determine the availability of the assessments. All other resources should be available for all clients.

Availability of time

Time is critical to ensure the success of this model. The client needs to be aware that time plays an important part in this process. Improving running economy does not occur with one training session or overnight. It comes with continuous training efforts, a well-developed plan, and with time, which allows for personal reflection and observations.

Rewards and incentives

Whether it is intrinsic or extrinsic depends on the client. Regardless, rewards and incentives assist with keeping motivation and commitment at a high level. The subject matter expert will need to ensure they incorporate the right amount of rewards and incentives to help keep individuals on target in accordance with their individual plans. Developing and incorporating these rewards and incentives can serve as small wins for achieving the desired end state, the final goal.

Participation

Although rehabilitation programs and individual plans are designed and developed in accordance with the results of the analysis, the client should also have the opportunity to provide input. This input can assist the developer in developing a program and plan that best fits the client's lifestyle and preference. The instructional designer/developer, subject matter expert, and the client will all be responsible for providing input during stage 2 of this model (process).

Commitment

One of the most critical aspects of accepting and adapting to change is commitment. Individuals have to be committed and patient through this model. Improving running performance occurs through consistency, dedication, and over time. Time will vary, depending on an individual's goals.

Leadership is evident

Individuals that hold the leader role play an important part in this model. They are responsible for motivating, encouraging, evaluating, and providing feedback to the client. These individuals will ensure the client follows, stays on track, and completes their individual rehabilitation program or training plan. Coaches also fill the leadership role and play a critical part in a runner's performance.

Advantages and Disadvantages

There are several advantages and disadvantages in using the Keep Running Model, which are listed below.

Advantages

1. Reduce common running injuries.
2. Used for all types of runners.
3. Plethora of instructional materials already available.
4. Several tools available for thorough front-end analysis.
5. Can be used several times as runners improve.

Disadvantages

1. Requires experience to use.
2. Requires constant evaluation/observation for accurate feedback.
3. Ongoing process, never ends.

Conclusion

The overall goal for this model is to prepare and improve running economy for current and future runners in an effort to avoid pain and prevent injuries while running. Regardless of the reason for running, this model will provide the framework for prescribing the needed instructions in increasing the knowledge and skills to improve running economy and remain injury free.

Therefore, this model will assist in closing a performance gap that currently exist for many members of the United States Army and many recreational runners, as well as a reference for those who plan to adopt running in their future lifestyles

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