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## CLASSIFICATION OF THE DATA FROM PARENT-CHILD INTERNET ADDICTION TEST BY USING ARTIFICIAL NEURAL NETWORKS

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### ABSTRACT

The aim of this study is to classify and interpret the data obtained from the Parent-Child internet addiction scale using artificial neural networks, which enables parents to evaluate their children's internet addiction levels. The Parent-Child Internet Addiction Scale in the study was administered to 1356 parents and children. The results obtained from this application are classified using artificial neural networks. The dominant factors affecting the parent's view of their children as Internet addiction is determined to spend time on the internet.

**KEYWORDS:** *Internet Addiction, Parent- Child, Classification, Neural Networks*

### INTRODUCTION

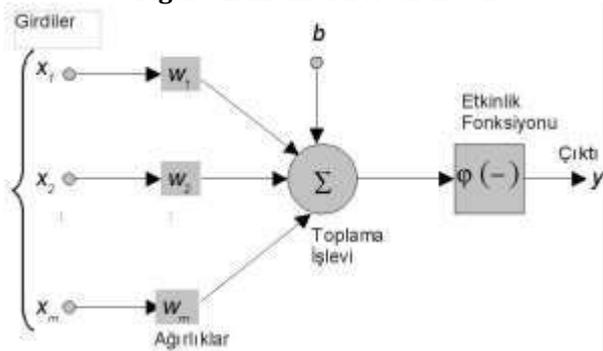
Artificial Neural Networks are parallel and distributed information processing structures that are developed from human brain and composed of processing elements connected by weighted links. The most important feature is to be able to learn from experience (experience). Artificial neural networks have been developed with the aim of automatically generating the ability to derive new information, learn and discover new information through learning from the properties of the human brain without any help (Nilsson, 1998). Artificial neural networks have the ability to create relationships between information as well as learners (Luger, 2002).

The basic functions of artificial neural networks can be specified as follows

- Prediction or forecasting: Future sales, weather forecasts, horse races, environmental risk,
- Classification and Clustering: Customer profiles, medical diagnostics, voice and shape recognition, cell types
- Control: The level of sound and vibration in the aircraft for early warning,

It can also be used for Data Association, Data Conceptualization and Data Filtering. Artificial neural networks have special application areas such as industrial applications, financial applications, military and defense applications, medical and health applications, engineering applications, communication industry apart from robotics, image processing, pattern recognition, and recreational forecasting (Russel and Norvig, 1995)

An artificial neural network (ANN) basically consists of inputs, weights, collection function, and output (Figure 1).

**Figure 1. Artificial Neural Cell**

In general, weight values are automatically changed according to the specified learning rule by assigning output values to a given input set. The network, trained after completion of the training data, can predict the result of any data set given the final state of the weight values.

An artificial neural network is formed by a number of nerve cells connected to each other by advanced and feedback connections.

Nowadays, many artificial neural network models (Perceptron, Adaline, MLP, LVQ, Hopfield, Recurrent, SOM, ART and PCA) have been developed for use with specific purposes and in various fields. Teacher learning, non-teacher learning, supportive learning and mixed strategies are used in learning types.

It is an information processing technology developed by inspiring the human brain's information processing technique. With ANN it is simulated (similar) to the way the simple biological nervous system works. The simulated nerve cells contain neurons, which connect to each other in various ways to form a network. These networks have the capacity to learn, memorize, and reveal the relationship between the hosts. In other words, ANNs produce solutions to the problems that normally require a person's natural abilities to think and observe. The fundamental reason for a person to be able to produce solutions for the problems that require his / her ability to think and observe is the ability to learn by living or trying to have the human brain and therefore the human being.

In biological systems, learning occurs through the adjustment of synaptic connections between neurons. That is, people start to learn by living from their birth. In this process, the brain is continuously developing. As we live and experience, synaptic connections are established and even new connections are formed. Learning occurs at this point. This also applies to ANN. Learning happens by using examples through training; in other words, the realization occurs by processing the input / output data, that is, by using the training algorithm to repeatedly adjust the weights of the synapses until a convergence is achieved.

ANNs are mathematical systems consisting of many processing units (neurons) connected

together in a weighted fashion. A transaction unit is, in fact, an equation often referred to as a transfer function. This processing unit receives signals from other neurons; combines them, transforms them, and generates a numerical result. In general, the processing units correspond roughly to real neurons and are interconnected in a network; this structure also constitutes neural networks.

## FINDINGS

At the heart of neural computation are distributed, adaptive and nonlinear processing concepts. ANNs operate differently from traditional processors. In conventional processors, a single central processing unit performs each movement in turn. ANNs consist of a large number of simple transaction units, each of which deals with a piece of a major problem. In its simplest form, a processing unit weighs a set of weights, transforms nonlinearly, and generates an output value. At first glance, the way units work is misleading. The power of neural computation comes from the intensive connection between the processing units that share the total processing load. In these systems, healthier learning is provided by the method of back propagation.

In most ANN, neurons with similar characteristics are structured in layers and the transfer functions are run simultaneously. Almost all networks have data-receiving neurons and output-generating neurons. The mathematical function, the main element of ANN, is shaped by the architecture of the network. More specifically, the basic structure of the function determines the size of the weights and the operation of the processing elements. How ANN associates behavior, ie input and output, is influenced first by the transfer functions of neurons, by how they are interconnected and by the weights of these links.

In the study, the scale data obtained from Parent-Child Internet addiction scale developed by Esgi (2014) and obtained from 1356 family and students were used.

## DISCUSSION AND CONCLUSION

According to results one of the dominant factor that affect Parent's view of their children as Internet addiction is that they spend time on the internet. So should be argued that being addicted on internet mostly demanded on time spending. On the other hand those children are digital natives so it is not so easy to describe them as addicted with just time matters. To describe addiction we need more instruments. Also we need new addiction scales for children in which using different time length. In other words addiction especially child internet addiction should be described all over again.

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