Promoting Physical Activity through Persuasive Technology

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Abstract*—The purpose of this project was to improve physical activity with the use of persuasive technology. The principal objectives were to study the need for physical activity; its challenges and opportunities. To examine the barriers and challenges in using persuasive technology for physical activity promotion. To study the issues of physical activity and propose a persuasive technology that can be used effectively by all types of individuals regardless of the age. The major findings derived from this study suggest that a lot of people have not been exercising even though they know the great benefits of physical activity. Based on the above mentioned problem I proposed a conceptual model to help change behavior by choosing the right technology for the right set of people.

***Keywords*— Interactivity, Physical Activity, Persuasive Technology, Behavior Change, Psychology, Human Computer Interaction**

I.INTRODUCTION

Persuasive technology is broadly defined as a technology that is designed to change attitudes or behaviors of the users through persuasion and social influence, but not through coercion [15]. Most self-identified persuasive technology research focuses on interactive, computational technologies, including desktop computers, Internet services, video games, and mobile devices [3], but this incorporates and builds on the results, theories, and methods of experimental psychology, rhetoric [5], and human-computer interaction. The design of persuasive technologies can be seen as a perculiar case of design with intent [24].

Well-documented scientific evidence has demonstrated that a sedentary lifestyle is one of the leading causes for most of today's health problems and chronic diseases, such as obesity, heart disease, cancer, diabetes, etc. While technology indeed has had many negative impacts on a physically active lifestyle, it has great potential to help promote Physical Activity.

II. BACKGROUND OF STUDY

Persuasive technology is designed with the intent to change a particular aspect of human behavior in a predefined way. One of the most important current targets for persuasive technology is the promotion of healthy behavior.By mediating tasks within human activity, persuasive technology aims at changing the operational level in such a way that it modifies the behavior to support the overall activity.

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Physical activity promotion has been a topic of interest for several years now. At the core of research efforts has been the development of physical activity monitoring capabilities and activity inference techniques. A second strand of research addresses the design of engaging and effective user experiences that promote participation in physical activity. As physical activity promotion matures as an application domain, it is necessary to reflect on what has been achieved so far and consider how persuasive technology can further contribute. This work provides such reflection by presenting a conceptual overview of existing research, and then uses a study of attitudes towards physical activity behavior to frame a critical review of the current state of the art, conveying the value of physical activity to those unconvinced of its importance. But the question is, has the promotion of physical activity through persuasive technology being achieved so far?

III. REVIEW OF EXISTING RESEARCH ON PERSUASIVE TECHNOLOGY IN THE FIELD OF PHYSICAL ACTIVITY

Technology is frequently designed to draw people's attention to specific information in an attempt to change what they do or think. B.J Fogg has labeled this phenomenon "persuasive technology [15]. Fogg suggests persuasive technology can be used to change people's behaviors in non-commercial domains such as preventative healthcare and fitness [15].

Persuasion is one of the most effective tools to help change others' attitudes or behaviors [11]. Using available present-day technology to assist persuasion is almost as effective as persuasion itself [17]. The first major breakthrough in this relationship was the technology that allowed easier production and distribution of books, flyers, pamphlets, billboards and other forms of written and visual communication. With the introduction and advances of computers and other new technologies, persuasion based on technology is getting smarter. As a result, technology-centered persuasion is rapidly developing. Dr. B.J. Fogg [17] of Stanford University introduced the term persuasive technology (PT), which he defined as ―a computing system, device, or application intentionally designed to change a person's attitude or behavior in a predetermined way. He also coined the term ― 'Captology', which he derived as a partial acronym for Computers as Persuasive Technologies (CAPT-ology), for this area of study. Three international conferences have been held on PT since 2006 and it is expected that PT will become a major research area in behavior change. PT itself is, in fact, not unknown to the field of health behavior change and promotion. Since computing technology is pervasive, it allows persuasion messages through technology to be interactive rather than one-way, that is, altering and adjusting the pattern of interaction based on the characteristics or actions of the persuaded party:– The user's inputs, needs and context

[21].This application of persuasion strategy by means of computing technology is defined as persuasive technology.
Persuasive technology has successfully been employed to design an interactive interface that motivates people to use stairs instead of the escalator at a subway station [25], as well as a ubiquitous computing system that improves hand-washing behavior at the sink [13].
Most self-identified persuasive technology research focuses on interactive, computational technologies, including desktop computers, Internet services, video games, and mobile devices [3], but this incorporates and builds on the results, theories, and methods of experimental psychology, rhetoric [5], and human-computer interaction.
Fogg, B in 2003 developed a functional triad for captology, which neatly organized three different ways people respond to computer technology. Firstly, the computer as a tool to persuade people by making some behavior easier or more efficient to do, or leading people through a process or performing calculations or measurements that motivates.
Secondly, the computer as a medium can persuade people by allowing people to explore cause-and-effect relationships, or providing people with vicarious experiences that motivate or helping people rehearse a behavior.
Thirdly, the computer as a social actor can persuade people by rewarding people with positive feedback, or modeling a target behavior/attitude or providing social support. This is done through physical attractiveness, similarity, influencing through language, reciprocity and authority [15]

IV. CHALLENGES IN PROMOTING PHYSICAL ACTIVITY

Programs that discourage smoking have been reasonably successful. However, public health programs that encourage physical activity have not. While the benefits of regular physical activity are well documented in the medical literature and the problems associated with a sedentary lifestyle are even more apparent, public health officials struggle for methods to promote increased physical activity that will work in American society. In a study published in the January 2007 issue of the American Journal of Preventive Medicine, researchers examine the challenges in promoting physical activity in a society less and less inclined to walk, run or exercise.
Writing in the article, Antronette K Yancey, MD, MPH, at the UCLA School of Public Health, states, "Although the science of physical activity promotion is advancing rapidly the practice of promoting physical activity at a population level is in its infancy. The virtual absence of a public health practice infrastructure for the promotion of physical activity at the local level presents a critical challenge to chronic disease, and particularly obesity, control policy." The authors examined the current public health infrastructure and found that there are political and systemic barriers to effective physical activity promotional efforts. Competing interests have often conspired to hamper such programs.
Dr. Yancey continues, "Physical activity promotion constitutes a critical role for public health practice, given the increasing prevalence of inactivity and sedentary behavior, the substantial protection against obesity and chronic disease conferred by regular physical activity, the major contribution of sedentariness and obesity to health disparities and the increasing understanding of the central role that physical activity plays in overall health and quality of life.

V. REVIEW OF THE USE OF PERSUASIVE TECHNOLOGY TO PROMOTE PHYSICAL ACTIVITY ON CHILDREN

It is clear that, despite their natural tendencies, children have become less physically active in recent decades, with children today expending approximately 600 kcal ´day-1 less than their counterparts 50 years ago. Although the health consequences of reduced energy expenditure in adults are well documented, there is little direct evidence linking sedentariness with health in children. However, three main benefits arising from adequate childhood physical activity have been postulated. The first is direct improvements in childhood health status; evidence is accumulating that more active children generally display healthier cardiovascular profiles, are leaner and develop higher peak bone masses than their less active counterparts. Secondly, there is a biological carryover effect into adulthood, whereby improved adult health status results from childhood physical activity

TABLE II
THE IMPLEMENTATION OF PERSUASIVE TECHNOLOGY TO PROMOTE PHYSICAL ACTIVITY ON VARIOUS INDIVIDUALS

TECHNOLOGY	BRIEF EXPLAINATION	SET OF INDIVIDUALS IT APPLY TO
Chick Clique	A "clique" of up to four girlfriends use pedometers and a cell phone application to share step achievement.	Teenage girls
Interactive Video Games	Although interactive video games like Dance Dance Revolution (DDR), Wii Sports, and Wii Fit were designed to create more engaging game play, studies show that these games increase energy expenditure and may produce positive health benefits (Chamberlain and Gallagher 2008; Graves et al. 2007; Zhu 2008).	Children Adult Elderly people
Pedometers	Pedometers count and monitor the number of steps taken throughout the day. Most pedometers provide a fairly accurate count of steps taken during ambulatory activities such as walking, jogging, and running.	Adult Elderly
Accelerometers	Accelerometers record body acceleration minute to minute, providing detailed information about the frequency, duration, intensity, and patterns of movement.	Adult Elderly
Heart Rate Monitors	Heart rate monitors are used primarily to assess and monitor exercise intensity. These devices are especially useful for monitoring exercise intensity of individuals in cardiac rehabilitation programs and highly-trained, competitive athletes.	Adult Elderly
Combined Heart Rate Monitoring	The prediction of energy expenditure during physical activity is improved by 20% when data from heart rate monitors are used in conjunction with accelerometer measures of physical activity (Strath, Brage, and Ekelund 2005).	Adult Elderly

However, supporting evidence for this assertion is weak. Given this background, recent health guidelines suggesting that children should accumulate 60 min of moderate-

intensity physical activity every day - supplemented by regular activities that promote strength flexibility and bone strength - appear to be justified. Future developments should include the implementation of large-scale, longitudinal studies spanning childhood and young adulthood, the further refinement of tools for measuring physical activity accurately in young people, and research into the relative strength of association between fitness as well as activity and health in children. In conclusion children are vulnerable to some diseases due to their weaker bodies therefore there should be a sort of physical activity that will enhance their healthy living and body development.

Although behavior changes towards physically active and healthy life styles have been emphasized, physical inactivity behavior is still a burden to the US society. To motivate health-related behavior change, interactive games (IG), which usually involve some significant body movements while playing, have been adapted to public health (Baranowski et al., 2008). Recently, IG started to be employed in fitness, rehabilitation, school setting, and individual exercise to promote physical activity and this study provided a summary of studies and findings of IG. For 7-12 year old youths, interactive dance and bicycle games were more effective motivators to be active than traditional dance (Epstein et al., 2007). Doing Dance Dance Revolution (DDR) showed better health outcomes (e.g., higher heart rate, VO2, total energy expenditure (EE), & exercise intensity; Sell et al., 2008). Playing interactive video games also increased energy expenditure (EE) in children (traditional-game: 7.6 VO2ml/kg/min vs. IG- Final-Furlong-simulated horse-racing with whole-body-movements: 26.5; Ridley & Olds, 2001). Wii activity (boxing 198.1 kj/kg/min) also showed higher EE than resting-EE (125.5) in youth (Graves et al., 2008). In clinical settings, IG assisted with pelvic muscle retaining (McKenna et al., 1999), improved arm control in children with Erb's palsy (Krichevets et al., 1995), enhanced hand-eye coordination (Anshel& Martin, 1996), and helped to recover the upper extremity (Bach-y-Rita et al., 2002).

Video game-based exercise was found effective in motivation of practice volume and attention span of the balance in persons with traumatic brain injuries and spinal cord injuries (Betker et al., 2007). O'Conner and colleagues (2001) employed GAME Wheels System, an effective system to link a wheel and a computer to let wheelchair users to play commercially available video games. GAME Cycle exercise system (Widman et al., 2006) also motivated exercising longer and assisted to increase EE. Robinson et al. (2008) and Shrewsbury et al. (2008), however, warned about possible knee and shoulder injuries from playing IG. While studies have started to show the benefits of IG-based exercise or rehabilitation, sample sizes in these reported studies were small. To generalize the findings, studies with large sample sizes are needed and the effect size of the intervention should be computed. Another limitation is that invalid outcome measures were sometimes employed (e.g., accelerometer was used to measure EE). In conclusion, IG has a great potential in helping physical activity promotion, but large sample size studies are needed to determine the effectiveness of IG-based interventions.

VI. Review Of The Use Of Persuasive Technology To Promote Physical Activity On Teenage Girls

The girls were targeted, ages 12 to 19, because they are more likely to become less active throughout adolescence when compared to their male counterparts [2]. Teenage girls are also more likely to use unhealthy techniques for losing weight such as skipping meals, extreme calorie reduction and purging [1].

Furthermore, girls were found to be more responsive to health behavior interventions in a two-year study targeting adolescent obesity [19].

The trends for adolescents are of notable concern because overweight adolescents are at an increased risk of becoming overweight or obese adults. Some researchers believe that the current generation of children may not outlive their parents, naming the killer ―Sedentary Death Syndrome[6]. In sum, Chick Clique changes the isolated process of self-monitoring into a cooperative, supportive process where friends can share personal fitness information and give one another encouraging feedback.

VI. Review Of The Use Of Persuasive Technology To Promote Physical Activity OnElderly Individuals

One of the main consequences of the progressive aging of our society is the rise of expensive age-related disabilities and diseases [26]. Over the last decades experts have drawn an extensive list of benefits that healthy exercise can bring to the physical and psychological function of older individuals [29]. Despite this, in Europe only 20 % of persons aged 65 and older engage in strenuous physical activity, whereas 45 % engage in moderate activity [30]. Similar percentages apply to the US, where barely 25 % of older adults are sufficiently active to benefit from physical activity [31]. For both the economy and public health, it is necessary to activate the elderly segment of the population.

Although it is possible to find PT products to stimulate physical activity in the market, none of them is adapted to the limitations of older adults.

VII. MODEL FOR PROMOTING PHYSICAL ACTIVITY WITH PERSUASIVE TECHNOLOGY

Many other people have proposed ways to understand persuasion and behavior change towards physical activity. What makes the proposed Behavior Model different from previous work? First, this model shows how behavior is the result of specific elements coming together at one moment. Next, it explains the subcomponents of each element. For example, sometimes if motivation is very high, ability can be low. Finally, it applies most directly to practical issues of designing for behavior change toward the improvement of physical activity using today’s persuasive technology and promote good health.

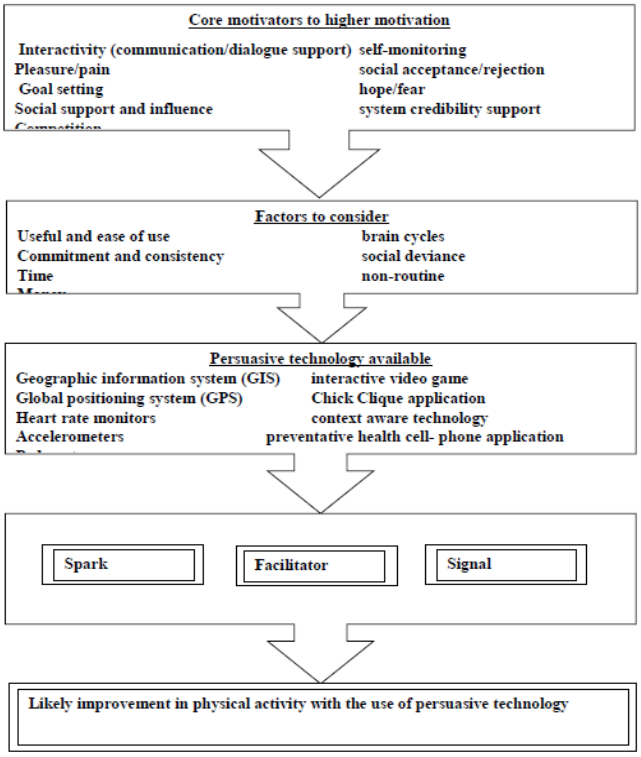

Fig. 1.0

VIII. CORE MOTIVATORS TO HIGHER MOTIVATION

Traditional media, from bumper stickers to radio spots, from print ads to television commercials, have long been used to influence people to change their attitudes or behaviors. What's different about computers and persuasion? The answer, in a word, is interactivity.

As a general rule, persuasion techniques are most effective when they are interactive. When persuaders adjust their influence tactics as the situation evolves. Skilled salespeople know this and adjust their pitches according to feedback from the prospect.

Persuasive technologies can adjust what they do based on user inputs, needs and situations. An interactive program to help someone quit smoking can tailor its approach to how much the person smokes (physical addiction) and address the often-powerful psychological issues (psychological addiction) that compel the person to smoke

Today computer technology is being designed to apply traditional human techniques of interactive persuasion, to extend the reach of humans as interactive persuaders. This is new territory, both for computing technology and for human beings.

A. Fogg's model

The goal in designing for motivation is, conceptually, to move a user to a higher position in the behavior model landscape. In other words, the users who have high ability but low motivation need to have motivation increased so they cross the behavior activation threshold as shown in Fogg's model.

1)Pleasure / Pain: The first core motivator in the model is a dimension that has two sides: pleasure and pain. What differentiates this motivator from those that follow is that the result of this motivator is immediate, or nearly so. There's little thinking or anticipating. People are responding to what's happening in the moment. It is believed that pleasure/pain is a primitive response, and it functions adaptively in hunger, sex, kinesthetic and other activities related to self-preservation and propagation of our genes. Pleasure and pain are powerful motivators.

2)Hope / Fear: The second core motivator in the model is a dimension that has two sides: hope and fear. This dimension is characterized by anticipation of an outcome. Hope is the anticipation of something good happening. Fear is the anticipation of something bad, often the anticipation of loss. This dimension is at times more powerful than pleasure/pain, as is evidenced in everyday behavior. For example, in some situations, people will accept pain (a flu shot) in order to overcome fear (anticipation of getting the flu). But hope/fear is not always more motivating than pleasure/pain.

3)Social Acceptance / Rejection: The third core motivator in the model is a social dimension that has two sides: social acceptance and social rejection. This dimension controls much of our social behavior, from the clothes we wear to the language we use. It is clear that people are motivated to do things that win them social acceptance. Perhaps even more dramatically, people are motivated to avoid being socially rejected. The power of social motivation is likely hardwired into us and perhaps all other creatures that historically depended on living in groups to survive. ***Fig. Fogg's model***

IX. CORE MOTIVATORS TO HIGHER MOTIVATION

The tools for creating persuasive products are getting easier to use, with innovations in online video, social networks, and metrics, among others. As a result, more individuals and organizations can design experiences they hope will influence people's behaviors via technology channels. However, many attempts at persuasive design fail because people do not understand what factors lead to behavior change; some of them are shown in the model.

A. Time

The first element of simplicity is time. If a target behavior requires time and we donot have time available, then the behavior is not simple.

B. Money

The next element of simplicity is money. For people with limited financial resources, a target behavior that costs money is not simple. That link in the simplicity chain will break easily. For wealthy people, this link in the chain rarely breaks. In fact, some people will simplify their lives by using money to save time. It is a tradeoff. Knowing that you donot need to go to pay and go to a gymnasium but just have a small device on you will be more motivating.

C. Brain Cycles

The next factor in simplicity is call "brain cycles". Ifperforming a target behavior causes us to think hard, that mightnot be simple. This is especially true if our minds are consumedwith other issues. In contrast, some people are very good atthinking, so this link in their simplicity chain will rarely break. But for the most part, we overestimate how much everyday people want to think. Thinking deeply or thinking in new ways can be difficult.

D. Social Deviance

The fifth element of simplicity is less obvious than the others. It is called "social deviance". What is meant by social deviance is going against the norm, breaking the rules of society. If a target behavior requires me to be socially deviant, then that behavior is no longer simple. For example, wearing pajamas to a city council meeting might require the

least effort, but there is a social price to pay, which creates complications for that behavior.

E. Non-Routine

Finally, the sixth element of simplicity is what is called ―non-routine. People tend to find behaviors simple if they are routine, activities they do over and over again. When people face a behavior that is not routine, then they may not find it simple. In seeking simplicity, people will often stick to their routine, like buying gas at the same station, even if it costs more money or time than other options.

X. TRIGGERS

The last factor in the model is Triggers. The general concept of triggers goes by many names: prompts, cues, calls to action, and so on. The idea is similar: A trigger is something that tells people to perform a behavior now. Often overlooked (or taken for granted), triggers are a vital aspect of designing persuasive products. In fact, for behaviors where people are already above the activation threshold, meaning they have sufficient motivation and ability, a trigger is all that is required. Not all triggers function in the same way. Below is a description of three of them: namely Sparks, facilitators, and signals.

A spark is a trigger that motivates behavior. A facilitator makes behavior easier. And a signal indicates or reminds. The following text explains each trigger in more depth.

A. Spark as Trigger

When a person lacks motivation to perform a target behavior, a trigger should be designed in tandem with a motivational element. This type of trigger is called a ―spark.‖ Sparks and other trigger types can come in various forms; the channel or embodiment doesn't matter as long as the trigger is recognized, is associated with a target behavior, and is presented to users at a moment when they can take action.

B. Facilitator as Trigger

The second trigger type is what is called a 'facilitator'.This type of trigger is appropriate for users that have high motivation but lack ability. The goal of a facilitator is to trigger the behavior while also making the behavior easier to do. Like sparks, a facilitator can be embodied in text, video, graphics, and more. An effective facilitator tells users that the target behavior is easy to do, that it would not require a resource he or she does not have at that moment.

C. Signal as Trigger

The third and final type of trigger is what is called a 'signal'. This trigger type works best when people have both the ability and the motivation to perform the target behavior. The signal does not seek to motivate people or simplify the task. It just serves as a reminder. Because of the presence of both motivation and ability, all that is needed to practice daily is a well-timed reminder. Spark or a facilitator may not be needed at all. Those types of triggers would either be annoying or condescending.

An ordinary example of a signal is a traffic light that turns red or green. The traffic light is not trying to motivate. It simply indicates when a behavior is appropriate.

D. Importance of Triggers

Since the advent of persuasive technology, the role of triggers has grown in importance. Today, many of the most desirable target behaviors are done when using computers; donate money, share this with a friend, buy this new product. When we use interactive technology, we can receive a trigger and perform the target behavior immediately. With traditional media like TV or newspapers, immediate response was not usually possible. We might encounter a trigger in a magazine ad or hear something on the radio, but then we would have to change our context to perform the behavior, such as driving to the store to make a purchase. However, today we can take action immediately with and through computers. Triggers can cause us to act on impulse.

XI. FINDINGS AND DISCUSSION

The research focused on promoting physical activity through the use of persuasive technology.

Based on the study carried out on the general public to find out how physical activity can be promoted through the use of physical activity, relevant information was obtained from the public. From the analysis below,

Children exercise physically weekly because of the institutions or school they belong to. But, it is not that fun until technology comes in, they loved to have interactive games to get out of their environment into a virtual world to have fun that will help keep their body healthy. Very few of them have used persuasive technology before and they all really loved it.

The findings also reveals that some adults acknowledged the need for an improvement in the field of physical activity but others believed that their everyday routine is already enough exercise the body especially the females.

The elderly people results demonstrated that they do not take physical activities seriously, which is the reason why they get all sort of sicknesses and end up spending on drugs. In general, males tend to be more active physically than females.

The result of the study shows that a lot of people do not take time to exercise which is very bad though they are aware that physical activity is beneficial and need to be improved at all ages.

The result demonstrated that the main problem is the lack of motivation and the fact that a lot of people are not aware of the existence of persuasive technology tools and their benefits.

The first objective of this research focused on the need for physical activity- opportunities and challenges. In healthcare, persuasive technology has been applied in areas of teenage pregnancy, STDs (sexually transmitted diseases), weight management, and general wellbeing among others. Despite growing interests in persuasive technology and its potential benefits, it still lacks established methods to systematically analyze and understand the problem domain that leads to its effective and systematic development. From the graphs in the analysis, figure 7 showed that all the respondents (100%) agreed that physical activity is important and need to be improved in order to avoid diseases resulting in living a sedentary lifestyle. This showed that the advantages of physical activity are not unknown to the respondent.

The second objective sought to examine the barriers and challenges in using persuasive technology for physical activity promotion. From the above analysis, these were the barriers and challenges identified,

- Considering Figure 4 above it is noticed that majority of the respondents (which are of 109 approximately 55.6%

of the respondents) are aware that they are not physically active even though they know the advantages of physical activity there is a lack of motivation that act as a barrier to physical activity improvement.

- There is a lack of the right tool as a motivator because of the lack of knowledge in persuasive technology tools. When you consider figure 14 of the analysis above only 18 people have used persuasive technology before and only 14 knew about persuasive technology all others took them to be games.
- Society's opinion on respondent decisions is one of the barriers identified. When we consider figure 8, 66.8% said yes. This means that exercising in groups; with people commenting and challenging you has a better effect and motivates more than doing it all alone.
- Knowledge in the use of technology can be a barrier if people are not experienced in the use of technology or if the system is not easy to use.

The lifestyle people want to lead is often different from the lifestyle they do lead. People want to be financially secure, yet consumer debt is on the rise. People want to be fit and healthy, yet physical inactivity and poor eating habits are leading to serious health problems. Based on this it is recommended the Dance Dance revolution which cost $56.98 which is the cheapest and Wii fit which cost $99.99 but has more features which can adapt to all classes of individuals.

XII. CONCLUSION AND RECOMMENDATIONS

Persuasive technology is defined as a computer system, device, or application that is intentionally designed to change a person's attitude or behavior [15]. This technology uses tools (e.g., pedometer or balance board), media (e.g., video, audio, or both), and social interaction (e.g., playing with another person) to persuade individuals to adapt the behavior without their actually knowing it. Although it was not developed specifically to promote physical activity, it has changed exercise attitudes and behavior of those using principles of persuasive technology. Dance Dance Revolution uses video, music, and a dance platform to capture interest and engage children in the activity without their being fully aware that they are exercising. The emerging field of persuasive technology has enormous potential for promoting physical activity and healthy behaviors [16], Zhu 2008.

The following recommendations are essential for government, organization and individuals:

People should align their potential for significant and positive use of persuasive technology to reap its health benefits.

1. Schedule time to make use of persuasive technology tools to keep themselves healthy.
2. Tools should be introduced to people and their benefits should be disseminated.
3. Governments through appropriate agencies (town and country planning) should make available persuasive technologies to promotion health in communities for all classes of people.
4. Tools should be affordable.
5. Should be interactive. As a general rule, persuasion techniques are most effective when they are interactive.
6. The tools should be reliable and easy to use.
7. The isolated process of self-monitoring should be changed into a cooperative, supportive process where friends can share personal fitness information and give one another encouraging feedback.
8. The wii fit is a video game that recommended based on the result of the analysis. It is a video game that requires the use of the Wii Balance Board, a unique platform peripheral that the player stands upon during play. Similar to a bathroom scale, the Wii Balance Board is capable of measuring a person's weight, but is also able to detect the person's center of balance (COB), a feature heavily utilized in the game. Wii Fit contains more than 40 activities designed to engage the player in physical exercise, which consist of yoga poses, strength training, aerobics, and balance games. Most activities generally focus on maintaining COB and improving posture. Players register and play in Wii Fit via a user profile, assigned with the player's date of birth, height, and Mii character that keeps track of the player's progress. Physical activities done outside of Wii Fit can be also be logged into the profile. Wii Fit allows up to eight different profiles to be registered.

Fig. 3.0 Wii Balance Board

The developers have to know the respondents' preferences in other to solve their problems. Before the developer can have an effect, the public should be aware of its necessity in their lives, in other to apply changes. If the respondents do not experience change with the use of technology they will have no interest in using persuasive technology tools. The tool should be effective in other to be attractive and sustain interest.

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