

Effects of Design on Motivational Climate and Achievement Goals of Users: Environmental Psychology Research Towards an ultimate Design of Sports Facilities in Egypt



Mariam Abouhadid, Rania Shafik

Abstract: Sports facilities design has not been subject to much research and development. It has been made in a specific design with not much analysis. Different types of sports and wellness requires different design. This research aims at setting guidelines for designing sports facilities in Egypt.

The research investigates the problem with a survey that was conducted on around 200 respondents from different age groups and fitness levels. The Questionnaire was constructed of 18 items that cover some demographic data and then spatial aspects and their effect on respondents. The respondents had to choose their preferences in terms of emotional comfort and focus, and he setting that keeps them motivated and focused to reach their fitness goals. The results show the different settings that each category of respondents prefer and get motivated in their workout environment depending on their gender, age, fitness level, type of sports, and their workout goals.

The research uses social science study methodology to investigate a sample of population to get an overview of the larger population. And the results show how the design of the built environment can affect human performance in sports and affect their mental and psychological health.

The results showed that in fact the workout environment affects the users and makes them more committed to achieve their health goals when they are in line with their preferences and make them feel comfortable, secure and welcomed.

Keywords : Environmental Psychology; Sports facility design; Human comfort; Motivational Climate.

I. INTRODUCTION

Sports have become a major aspect of modern human's life. Due to the lack of physical activities in every day's jobs, and the increasing working hours stuck in a cubicle or inside the office, people try to exert activity elsewhere to maintain their mental, psychological and physical health.

Sports facilities design has not been subject to much research and development. It has been made in a specific design since the seventies, and nothing has changed since then. Different types of sports and wellness requires different design. This research aims at setting guidelines for designing sports facilities in Egypt.

Architectural designs of different places affect the human behavior of users of those spaces. Some place designs are encouraging movement of people inside them like playgrounds, gyms, wellness clubs, sports facilities and tracks. Other paces inspire static energy and sedentary behavior like theaters, classrooms and offices. [1]

Ecological Models of behaviors has increased in the 1990s by Sports Investigators and Physical Activity experts. Some categories of influences have been discovered to affect the users of sports facilities that haven't been known before. Ecological models were known for acknowledging different levels of behavioral influences like individual factors (Psychological and biological), socio-cultural factors, organizational factors, surrounding people, surrounding context, and policies.

Physical environments include natural and built environments; while the first requires no human creation, the latter is designed by humans. Built environments include all types of buildings and man-made spaces, either indoors or outdoors, spaces like office buildings, residential buildings, commercial buildings, parks, transportation systems, and roads. The built environment I designed in accordance with land use, transportation systems and local policies.

Built Environments are also affected by some natural aspects like climate, weather conditions, vegetation and land topography. [1]

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Domain	Health, behavioral science, exercise science fields	City planning, transportation, urban design, geography fields	Leisure studies, parks, and recreation fields
Settings of interest	Recreation facilities, schools, worksites	Design of communities	Parks and recreation facilities
Physical activity behaviors of interest	Recreational or leisure time physical activity	Walking and cycling for transportation	Recreational or leisure time physical activity
Key concepts	Physical activity in specific settings, social environment, access to recreation facilities, home equipment, neighborhood attributes (function, safety, aesthetics, and destinations)	Walkability, often defined by 3Ds of residential density, land-use diversity, and pedestrian-oriented design	Constraints to leisure; biophysical, social, managerial aspects of recreation environments
Measurement approaches	Direct observation, self-report	Integration of data within GIS, self-report	Ratings of aesthetics
Key contributions	Measures of numerous social and built environment attributes; measured several types of settings; psychometric evaluation of measures; multiple measurement methods	GIS methods, walkability and other land-use concepts	Conceptualization of recreation environment characteristics, measurement of aesthetics

Figure 1: Contemporary Measures for physical Activity Environments [1]

Spatial Cognition is the study of the space properties of any object or place in the world. Cognition means knowledge, so it is the knowledge of space. Cognitive structure is located in humans' minds. The mind is located in a brain and a physical body of an individual living in a social group and natural environment.

The space properties include space location, distances, orientation, separation, connection, form, pattern and dynamism. The space factors that affect human psyche and emotions are the building form, positive and negative space, colors, openings, open spaces, ventilation, lighting, acoustics, construction, green elements and techniques and landscape. People spend most of their days in built environments, so their perceptions about space are directly connected to architecture and urban planning of their cities and environments. This is the reason why spatial cognition or knowledge is necessary for humans' well-being and understating their surroundings is their portal for a stress-free life. [2]

The study of emotions in sports environments is a growing paradigm. Some studies have researched the effect of emotions on games spectators regarding their post-purchase patterns. [3]

Other studies researched the effect of emotions on athletes' performances; [4] However little imperial research has studied the effect of emotions on the users of sports facilities and the consequences of being subject to different spatial experiences.

A study that focused on the analysis of emotions in a fitness environment by Collishaw, Dyer and Boies studied the effect of instructors' facial expressions on users' satisfaction with the staff overall performance. [5]

Another study by Sabiston et al. [6] studied how self- image and body consciousness, and how a person feels about his own image, whether guilt, shame or pride affects women's participation in sports' activities. The study also examined the effect of motivation and free time on women's commitment to their fitness routine. [6]

Those studies were important for understanding how emotions affect the users of sports facilities. Another research studied emotions as a driving force to behavioral patterns in fitness environments, by Kang et al. The study was conducted in a controlled environment and the researchers did not gather

all emotional experiences of users during their consumption behavior. [7]

In a fitness studio in Denmark, The expression of the architecture is functional; the building has decorations on the facade. Inside, the space is full of fitness machines, which fill the whole area. The dominant colors are silver metallic and black, and gray. Users stated that coming from a dark parking lot to the studio is terrifying. They also noted that the neon lighting and the vast space, and large glass windows are intimidating and makes them feel uncomfortable, as if people are watching them. A female lady stated that while doing physical activity she prefers to be in a private area in order to feel at ease. [8]

A Danish study of female and male expectations of the architecture of their sports facilities [9] [10] made an investigation that was based on the hypothesis that there was gender differences regarding their expectations, barriers and wishes of indoors and outdoors architectural facilities. The research results showed that architecture, which emphasized the lack of control and extreme exposure affected female exercising behavior in particular. It reinforced their feelings of embarrassment and discomfort. Men and women showed significant discrepancies in the psychological factors linked to sports participation. Women's exercising behavior was linked to her fears of having her personal space violated and the fear and insecurity of running outdoors on a dark route, those feelings represented important barriers to their outdoor physical activities. When exercising indoors, they named that feeling awkward was their biggest barrier to comfort while exercising. Unlike men, women can get uncomfortable while performing some types of movements in groups. They are body- conscious and usually have the preference of protecting their privacy from strangers' gaze. They also are very conscious to the concept of safety from external unperceived dangers. They can perceive a curtain wall for example as a source of unwelcomed visibility rather than an enlightening aspect to their workout space.

A female user of a spinning class stated that the positioning of the bikes very close to each other, in a way is intruding on users' personal space. However, this setting helps increasing the motivation and performance levels of the trainee and makes them feel safe.

According to Yalom’s theory, Human’s surrounding environment can reduce or increase their levels of anxiety. The theory states that human’ anxiety emanates from their being and is related to emotions such as fear, need or motivation [11]. Anxiety is perceived as main driving force in life.

Humans are faced during their adulthood with the paradox of self; they have to maintain their true self, Self-consciousness; while forgetting their “self” to interact healthily with their peers and environments. [8] Those theories help us understand how humans function and how their anxiety, that is affected by their environment, has an effect on their reactions and performances in their daily activities.

Another example is a fitness center where users vary between normal persons and people who have certain health conditions that require their commitment to a wellness routine. Most users agree that they need a solid feedback structure to be provided for them, tracking their progress and achievements in the center, in order to help them increase their sense of responsibility for their own health.

The users of the fitness centre acknowledged the fact that taking responsibility of their routine is the true way to commit and get motivated, otherwise, they tend to regress and drop the routine. [12]

However, they stated that when they are in charge, they can grow the habit and take the adult position.

The environment of the fitness center possess many aspects that either work for or against the users comfort and sense of attachment to the place, and hence his/her commitment and motivational levels. The space of training can produce feelings of protection and safety and supports the dynamism of the users. Or it can make users feel intimidated, marginalized and feeling threatened and unsecure. The emotional experience of the user is what keeps them motivated and committed to their goals; this requires a high degree of understanding and awareness in the facility space design.

So the architecture here plays a role in making the space a source of motivation or a hindrance to the users’ goals. When the users have grown a sense of family or belonging to the space, they easily engage in the routine and keep it as a habit for the common ground they share it the pace, they feel understood, seen and protected. [8]

II. TOOLS AND METHODS

A questionnaire is constructed to many athletes training in sports facilities and the results are analyzed statistically.

The Questionnaire consisted of 18 Item (Appendix 1), of which, 3 items of demographic data, 3 items of general data about type, timing and reason of working out. Starting item 7 till 16, questions are all about space features and how it makes the respondent comfortable or uncomfortable while working out. Space features include ventilation, lighting, dimensions, construction materials, wall type and shape, wall finishing.... The last 2 items try to add to the imagination of the respondent about whether or not he thinks recyclable or environmentally friendly materials should be used in sports facilities, and about how interesting they think embedding virtual reality is in their workout routine. Virtual environments like Hologram environment, immersive VR and mobile applications, are starting to take over in many places the traditional workout setup of a real coach, the survey wanted to test the degree of

acceptance of such environments to Egyptian athletes to identify the ultimate workout facility services they look for.

The survey was conducted online using (SurveyMonkey.com), 175 respondent took the questionnaire, but 163 completed all questions, and all results were deducted from the completed applications only.

Qualitative study comes from Content Analysis of open-ended questions. And Quantitative study comes from the statistical analysis of defined questions.

Data were statistically described in terms of frequencies (number of cases) and percentages and compared using Chi-square (χ^2) test. Exact test was used instead when the expected frequency is less than 5. p values less than 0.05 was considered statistically significant. All statistical calculations were done using computer program IBM SPSS (Statistical Package for the Social Science; IBM Corp, Armonk, NY, USA) release 22 for Microsoft Windows.

III. TESTS RESULTS

The respondents of the survey were categorized into different groups depending on their age, gender, type of athlete (professional, medium, or recreational) in order to measure the factors that affect each category on their motivational patterns and the environment where they feel more comfortable and committed to achieve their fitness goals. (Fig. 2,3,4)

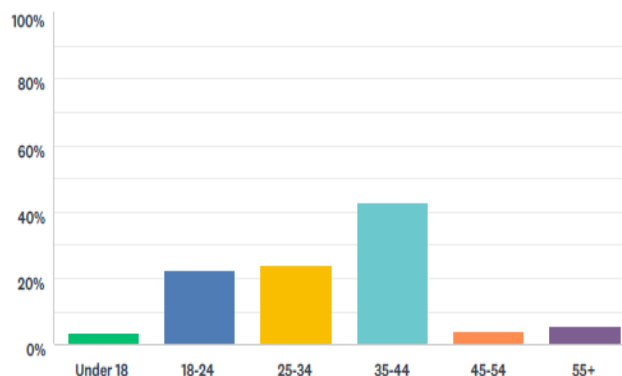


Figure 2: Male and Female Respondents Numbers (The researchers)

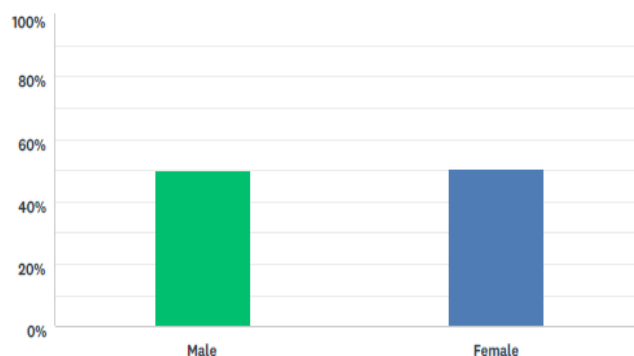


Figure 3: Age Groups Respondents Numbers (The researchers)

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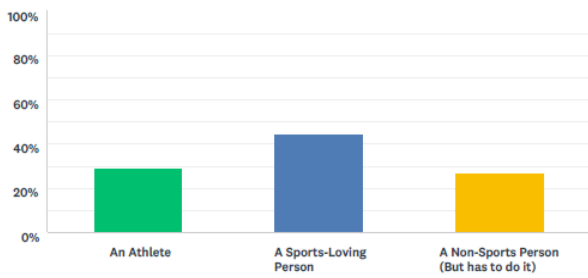


Figure 4: Athletic type Numbers (The researchers)

The research categorized the sports types to three types:

Low intensity

Medium Intensity

High Intensity

Low intensity exercises include Yoga, Pilates, low intensity cardiovascular effort like walking and jogging. Also sports that depend more on technical skills than physical efforts like table tennis, cricket, hiking and trekking.

Medium Intensity exercises included Aerobic exercises, dancing, cycling, ball sports (basketball, football, volleyball, tennis, squash, handball, waterpolo...), swimming, mild running, horse riding, diving, gymnastics, ballet...

High intensity sports included the following: Marathon, triathlon, martial arts, crossfit, body building, weight lifting, boxing, kickboxing, HIIT (High intensity training), karate, kungfu, taekwando...

In Appendix 1, the questionnaire that was used in the survey is presented in its complete form, as it was given on SurveyMonkey survey website.

In Appendix 2, It is explained the factors that were compared and how they affected certain criteria relating the workout environment to levels of motivation to the user and their ability to reach their goals.

Q5 At what time of the day do you prefer to workout?



Figure 5: Time of the day respondents workout (The researchers)

Comparing Male and Female in choice of training in their time of the day (Fig.5), Using Chi-Square test, it was proven significant with a p value 0.005.

The three goals of working out: Social affiliation, skill development and Physical image were significantly affected by the gender of the trainee. As for the three other goals: personal fulfillment, health management, and mental and psychological health, they were proven statistically insignificant, meaning that they are not affected by the gender of the trainee. (Fig.6)

It was proven that the motives of working out did not get affected by The Type of workout (High intensity, medium Intensity or low intensity). In other words, whether the person chose high intensity sports like weight lifting or low intensity like walking, his choice of a certain type of sport was not

affected or dictated by his motives behind practicing this sport in particular.

Q6 Why do you workout? Please Rank your goals By order of Importance. (Starting with the Most Important to the Least Important)

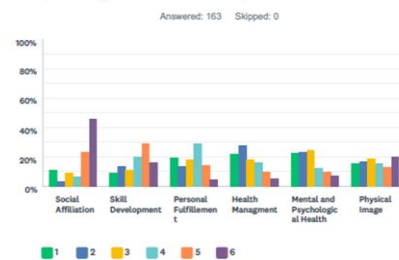


Figure 6: Reasons why respondents workout (The researchers)

Q7 Describe your Feeling working out in each of the following Environments?

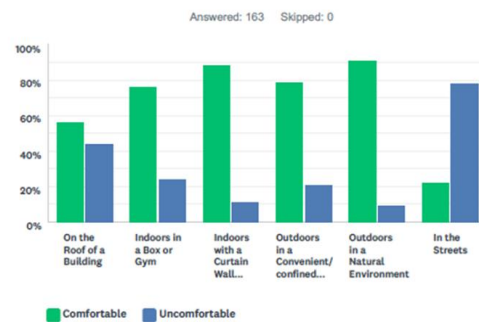


Figure 7: The feeling induced by different workout environments (The researchers)

The respondents were given 6 choices of places to practice sports in: On the roof of a building, indoors in a box or gym, indoors with a curtain wall overlooking a nice view, outdoors in a confined area, outdoors in a natural environment and in the streets. They were asked to choose where they felt mostly comfortable and where they felt mostly uncomfortable (Fig.7). Only 2 of the given places were proven to be affected significantly by the gender of the users: On the roof of a building and in the streets. The roof of a building was almost comfortable for half of the respondents and uncomfortable for the other half, while the streets were mostly uncomfortable.

Q8 What does each of the following aspects make you feel where you work out?

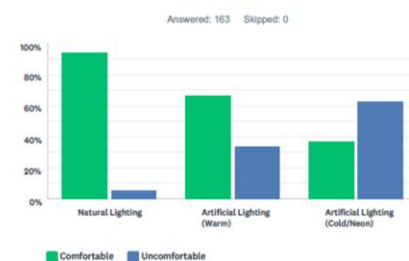


Figure 8: Effect of Lighting Types on respondents (The researchers)

The gender of the trainee was affected significantly by two of the types of space lighting: Natural Lighting and Artificial (Neon Lighting). (Fig.8)

The type of lighting used in a workout environment compared to different types of athletes was proven significant only for the neon light (White Light). As for the warm (yellow light) and the natural lighting, results were proven statistically insignificant.

Q9 What does each of the following aspects make you feel where you work out?

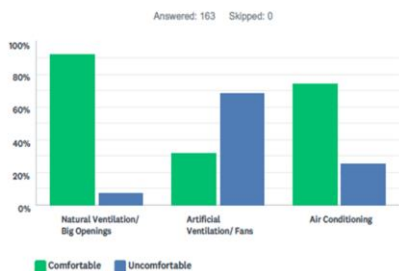


Figure 9: Effect of ventilation Types on respondents (The researchers)

The gender of the trainee was proven to not affect any of the preferences towards any type of ventilation in a workout environment. (Fig.9)

The type of ventilation used in a workout environment compared to different types of athletes was proven significant only for Artificial Ventilation (Fans). As for the natural ventilation and the air conditioning, results were proven statistically insignificant.

Q10 What type of spaces do you prefer in your Workout Environment?

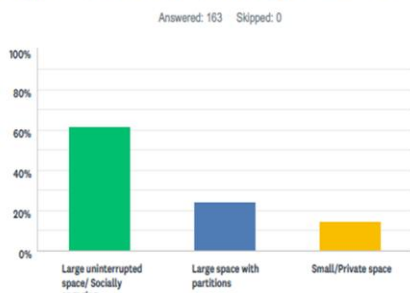


Figure 10: Type of space preferences to respondents (The researchers)

The type of space design: Large uninterrupted, large with partitions, or small secluded parts, were proven statistically insignificant for the gender of the trainee as well as for the different types of athletes.(Fig.10)

Q11 A Workout Environment should be Rough, Dark and Loud to Motivate me get Stronger.

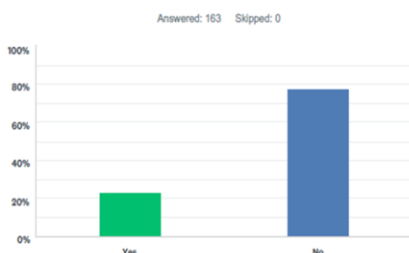


Figure 11: Criteria of space preferences to respondents (The researchers)

It was proven that the gender of the trainee and the chosen type of workout, or the intensity level of a workout were not significant factors in preferring a dark, loud or rough environment at the gym. The criterion of a dark, rough and loud space of a workout environment is very familiar in most places offering high intensity workouts like weight lifting, cross fit or HIIT exercises. But as proven statistically from respondents, it is not affecting the motivational levels of the users. (Fig.11)

Q12 More People and More competition Equals More Motivation and Focus.



Figure 12: Criteria of space preferences to respondents (The researchers)

Gender was proven significantly affecting how trainees think about this statement: “More people and more competition equals more motivation and Focus”. Most Male respondents (65%) replied positively to the statement and around 41% of the female respondents were positive about the statement. (Fig.12)

It was proven that, the choice of workout intensity, did not affect the users’ perspective on this statement:” More people and more competition equals more motivation and Focus”. (Fig.13)

Q13 What type of Walls/Partitions you prefer to see in a workout environment?



Figure 13: Partitions Type preferences (The researchers)

Q14 What type of Colors you prefer to see in your Workout Environment?

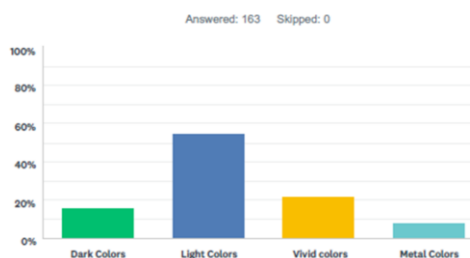


Figure 14: Color preferences to respondents (The researchers)

This means that the competitive atmosphere was not a factor that affects how motivated an athlete was, regardless of which type or intensity he chose to practice.

The gender of the person who trains was proven to affect his/her preference of the wall design inside the space, whether it is curved or sharp edged. 58% of the female respondents preferred straight and sharp edged walls, while only 37% of male respondents chose straight walls, and 63% preferred curved walls. Unlike what was expected that female will choose the more aesthetic and unusual forms, it is men who chose mostly curved and unusual designs.(Fig.14)

However the preference of the type of wall designs whether curved or with sharp edges was proven insignificantly affected by different athletic types.

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The preference of colors was proven to be significant to different genders in a workout environment. 62% of Female respondents chose light colors, while 46% only of male respondents made that choice. The rest chose between Dark, vivid and metal colors.

However the different type of athletes find it important to have certain colors in the workout environment and it was proven statistically significant. More than 50% of the total responses preferred light colors in a workout space, which is contradicting to the trend of having dark and metal colors in Gyms and boxes.

Q15 The following Features motivate you in a Training Environment.

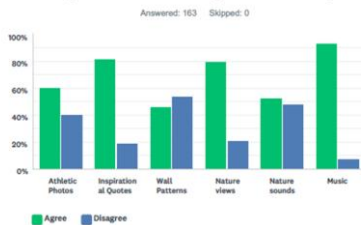


Figure 15: Space Features that motivate respondents (The researchers)

The gender difference was proven significantly affected by “inspirational Quotes” and “Nature views” in a workout environment. It was proven unaffected by athletic photos, wall patterns, nature sounds, and music. (Fig.15)

Different types of athletes were proven to have two factors that can affect their motivation levels in a training environment. The first is Nature views and the second is nature sounds. While other factors like athletic photos, inspirational quotes, wall patterns and Music were all proven statistically insignificant in difference between different athletic types.

Q16 The following help you Be Consistent and Achieve your Goals.



Figure 16: Space Features that keeps respondents consistent in their training routine (The researchers)

The figure above shows that the nature views were significant in a positive way while nature sounds were significant negatively and proven infective.

Music was proven significant for almost all of the respondents regardless of which category they belonged to.(Fig.16)

Q17 Do you think that your workout place should be Environmentally Friendly? (Recyclable Materials, Energy saving solutions...)



Figure 17: Respondents’ attitude towards the environment (The researchers)

All the above criteria were proven to be relatively insignificantly affected by the gender difference except for the “kids friendly” criterion, which was proven significantly affecting trainees’ consistency and ability to achieve their goals, based on their gender. A numerous check was performed to identify the group that has this preference and it was found that it was the female group that preferred having a kids’ friendly environment by a majority of 79%, versus 63% only in male respondents. This result is very coherent to the rising numbers of young moms willing to work out while keeping an eye on their children. (Fig.16)

The only factor in the surrounding area of the workout place that was proven to affect the level of consistency of the users, according to their athletic types, was the parking area, and of course it was proven that it was significant in a positive way. (Above Figure..) . Other factors like Walking distance, Hygiene, security levels and friendliness to kids, were proven insignificant regarding this criterion: Athletic types.

Gender was proven insignificant in responding to whether or not a workout place should be environmental friendly. (Fig.17) Also Age was proven insignificant with p value 0.513

Age was proven insignificant, in the three choices that were given to respondents: Hologram workouts, Immersive virtual reality and mobile applications. (Fig.18)

Gender was proven insignificant for the three options: Immersive Virtual Reality, Hologram workouts , however it was proven significant for mobile applications with a p value 0.041.

Q18 Finally, How do you Rate a Virtual Environment for working out?



Figure 18: Respondents’ preferences towards virtual training environments (The researchers)

IV. DISCUSSION

Crossfit is a workout that gained an enormous popularity in the last years; it still is growing and gaining more followers and believers. The program combines a set of high intensity workouts like weight lifting and calisthenics, it usually is a group session, led by a qualified instructor, each day is a different workout, in a way that keeps the users motivated and not bored from a single routine. The crossfit official website shows that there are more than eleven thousand crossfit boxes around the world and over 200 thousand people participated in the 2014 crossfit games open competition. [13]

A survey was conducted by Sibley et al. in 2017 on 322 respondents to test the goals, psychological needs, satisfaction levels, and their behavioral patterns in workout facilities.[13]

A famous theory by (Ryan and Deci) called the Self-determination theory SDT, it tests the factors that affect the exercise motivational levels and behaviors.[14] [15]

SDT has a sub-theory called the Basic Psychological Needs Theory, states that all humans have three primary needs that affect the extent to which they are satisfied in an environment, and it also affects their motivation and behavior in that environment. Those needs are: Autonomy, Competence, and Relatedness. In Other words the degree of freedom they possess, the degree of efficacy they feel, and the degree of belonging and having real relationships with people in the same environment.

The more those needs are met the more humans are satisfied and fulfilled [16],

Other research has studied positive affect of workout space [17]. Other research studied more autonomous forms of motivation in sports domain[18][19]

There is not yet any solid research done about the psychological needs and satisfaction of cross fit users.[1]

V. CONCLUSION

Design standards for sports facilities and workout spaces are very rare to find in architectural references. Modern life and rhythm had made sports one of the most important daily activities to a majority of working and non-working individuals around the world. Architectural practice has chosen some characteristics to work out environments that are not necessarily backed by research or scientific facts. Those characteristics cannot and should not be generalized regardless of the target users, the sport type, level, intensity and location. The most important factor that makes an individual chooses a place and stick to the exercise routine was found to be his motivational level, and his ability to stick to the exercise routine. That is why this research tried to gather previous research done in the field of sports facilities design and how they should be backed by environmental psychology of users. The survey conducted gathered 163 respondents from different levels, backgrounds, athletic types, age and gender in order to identify the factors that affect each user group and makes them more motivated and consistent in practicing their sport of preference. It was found that different gender has different perspectives on the workout space colors, wall design, and how loud and crowded the gym is. Also there were significant results in ventilation and lighting preferences to different categories of respondents. Also respondents showed their preferences to the location of a workout and city streets were found to be and uncomfortable environment for the majority of users. Future research can further study each sports type environment and each user group preferences.

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LIMITATIONS

Effects of Design on Motivational Climate and Achievement Goals of Users: Environmental Psychology Research Towards an ultimate Design of Sports Facilities in Egypt. Environmental Psychology research uses the socio-psychological methods for examining the phenomenon. The research used a Qualitative Approach in understanding some answers and content analysis. While used Quantitative approach to understand the exact percentages and inclinations

towards each factor and aspect in a workout environment in an accurate way.

The research has been applied on a sample of around 170 respondent chosen in Cairo, Egypt, differing in age, gender, type of workout and their fitness levels and goals. This research opens the door to more quantitative research in Egypt and worldwide studying the effects of different environments on the emotions of fitness groups.

REFERENCES

1. Sallis J., "Measuring physical Activity Environments", American Journal of Preventive Medicine, Elsevier, Volume 36., Number 4S, p. 86-92, 2009.
2. Janetius, S.T. , "Architectural Psychology", Art, Culture & Gender: The Indian Psyche, , Mishil & Js Publishers, Thrissur, p 67- 73, 2016.
3. Biscaia et al, "The effect of emotions on football spectators' satisfaction and behavioral intentions", European Sports management quarterly, 12(3):227-242, 2012.
4. Uphill et al, "The influence of in-game emotions on basketball performance", European Journal of Sport science, 2012.
5. CollishawM. Et al, "The authenticity of Positive Emotional Displays: Client Responses to Leisure Service Employees", Journal of Leisure Research, 40(1): 23-46, 2008.
6. Sabiston C., "The Role of body-related self-conscious emotions in motivating women's physical activity", Journal of sport and exercise psychology, 32(4): 417-437, 2010.
7. Kang et al., "Semantic analysis does not occur in the absence of awareness induced by interocular suppression", The journal of Neuroscience, 31:13535–13545, 2011.
8. Roessler K., "Healthy Architecture: Can environments evoke emotional responses?", Global Journal of Health Science, Volume 4, p. 83-89, 2012.
9. Rossler K. et al, "Arkitektur, Kvinder Og Idraet", 2007.
10. Roessler K., "Environmental Psychology , The interaction between movement and Environment- Environmental Psychology and the Sporting Space", 2007.
11. Yalom I., "Existential Psychotherapy", Basic Books, 1980.
12. Rossler et al, "Riding the wave of an expert: A Successful Talent Environment in Kayaking", Sport Psychologist 25(3):341-362, 2011.
13. Sibley B. et al., "What Keeps athletes in the gym?", Goals, Psychological needs, and motivation of crossfit participants", Internationa journal of sport and exercise psychology", p.1-20, , 2017.
14. Ryan et al, " Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being", American Psychologist, 55, 68-78, 2000.
15. Ryan et al, "Active human nature: Self-determination theory and the promotion and maintenance of sport, exercise, and health", Intrinsic motivation and self-determination in exercise and sport (pp. 1-19). Champaign, IL: Human Kinetics, 2007.
16. Gunnell et al, "Psychological Needs as Mediators? The relationship between leisure time physical activity and well being in people diagnosed with osteoporosis", Research quarterly for exercise and sport , 82:4, 794-798 , 2011.
17. Gunnell et al, "Psychological need satisfaction and thwarting : A test of basic Psychological Needs Theory in physical activity contexts", Psychology of Sport and Exercise 14 :599-607, 2013.
18. Edmunds et al, "Examining Exercise Dependence Symptomatology from a Self-determination Perspective", Journal of Health Psychology, 11(6), 887-903, 2006.
19. Sebire et al., " Examining Intrinsic versus Extrinsic Exercise Goals: Cognitive, Affective, and Behavioral Outcomes", Journal of Sport & Exercise Psychology 31(2):189-210, 2009.

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