BABEŞ-BOLYAI UNIVERSITY CLUJ-NAPOCA

The Faculty of Psychology and Education Science

The Influence of Physical Education in Higher Education on Promoting Physical Activity among Students

A Long Abstract

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Abstract

Although there is no doubt as to the importance of physical activity, physical education in higher education in Israel has reduced due to several factors, most of them concerning budget constraints and emphasis on academic achievements and grades. Thus, the research addressed the influence of physical education in Higher Education on promoting physical activity among students. The study aimed to explore the significance of mandatory sports courses in undergraduate programs in higher education and to investigate the impact of physical education units in higher education as a pedagogical program on promoting a culture of physical activity among students.

The study employed a mixed-methods research approach, combining qualitative research methods with quantitative research. In stage 1, interviews with sports unit managers were employed, while in stage 2 a closed-ended questionnaire was distributed to 200 participants. Content analysis was used to analyze the qualitative data while statistics were used to analyze the quantitative data.

The findings that emerged from the research showed that awareness and motivation are two critical components for healthy lifestyle and for maintaining health. Furthermore, the research shows that motivation is a highly significant factor in pursuing physical activity. The connection between motivation and the adherence to physical activity is clear. Motivation is expressed mainly in the understanding that physical activity causes a good feeling and improves physical fitness. The findings show that participation in sports courses that are part of the curriculum will lead to more positive motivation and less negative motivation. The courses will increase the awareness of physical training but will not necessarily make students stay active and adhere to physical activity as a way of life.

Ultimately, the study proposed a new conceptual framework regarding adherence to physical activity and creating a culture of physical activity through change in perception. The cognitive-consciousness change is what promotes physical activity as a culture throughout life and establishes it as a healthy lifestyle. The research contributed to knowledge in the field of the cultivation of a culture of physical activity through participation in curriculum-based sports units.

Key Words: *Physical activity, Physical education, Exercise, Academic Achievements, Self-Determination – SDT, Self-Enhancement Theory, Trans-Theoretical Model, Sport Commitment Model, Motivation, adherence to physical activity, healthy lifestyle.*

INTRODUCTION

The Israeli students sport is organized by the Academic Sport Association (ASA). The ASA is a non-profit organization founded in 1953 by students from the Hebrew University in Jerusalem, the Technion in Haifa, and School of Law and Economics in Tel Aviv University. The ASA's goals are:

- Organizing, managing, and developing the physical education, sport and related fields (the "sport") among students, staffs, and graduates of higher education institutions and academics in Israel.
- Fostering friendship and mutual relations of respect between the branch members of the association and federations, associations, various sports centers in Israel, and other entities.
- Spreading the idea of amateur sports among students, staffs and graduates of higher education institutions in Israel and their families.
- Organizing international competitions and tying the international connection of the association and its members.
- Determining the constitutions, regulations, procedures and irregularities for the association.
- Promoting and developing sports among the general public (from the association rules).

The study focuses on the effects of the cessation of compulsory sport courses, on the one hand, and on the implications of the existence of compulsory sport courses on the other. The study will examine differences that may arise between students who had taken compulsory sport courses and those who did not in terms of long-term engagement with physical activity as a lifestyle.

The researcher is interested to know what are the effects of the cessation of compulsory physical activity on the physical activity habits of the students and its measure; is compulsory physical activity important, or not, and does it have any effect on the students' lifestyle? The study will compare between students from the institutions that operate a mandatory sports program (the Technion) and students from an institution that does not operate a physical activity program anymore (Tel Aviv University).

Main Research Question

1. Will physical activity courses make students become more physically active and increase their health awareness and motivation to exercise?

Subsidiary Research Questions

1. What perceptions exist regarding the significance of mandatory pedagogical sports courses in under-graduate programs in higher education?
2. What is the impact of physical education units in higher education as a pedagogical program on promoting a culture of physical activity among students?

Research Hypotheses

General Research Hypothesis

The application of a pedagogical program composed by sports units as part of the curriculum in higher education efficiently promotes physical activity among students.

Research Hypothesis 1

The first research hypothesis states that a difference will be found between students who took part in the pedagogical program composed by sports units as part of the curriculum and students who did not, in their motivation level to physical activity (PA).

For the first research hypothesis, the independent variable is - the application of the pedagogical program composed by sports units as part of the curriculum in higher education, and the dependent variable is their level of motivation to physical activity.

Research Hypothesis 2

The second research hypothesis states that a difference will be found between students who took part in the pedagogical program composed by sports units as part of the curriculum and students who did not, in their adherence level to voluntary physical activity.

For the second research hypothesis, the independent variable is - the application of the pedagogical program composed by sports units as part of the curriculum in higher education, and the dependent variable is the grade of adherence to voluntary physical activity (PA).

Research Hypothesis 3

The third research hypothesis states that a difference will be found between students who took part in the pedagogical program composed by sports units as part of the curriculum and students who did not, in their life style level.

For the third research hypothesis, the independent variable is - the application of the pedagogical program composed by sports units as part of the curriculum in higher education, and the dependent variable is the grade of awareness to a healthy lifestyle.

Research Hypothesis 4

The fourth research hypothesis states that a difference will be found between students who took part in the pedagogical program composed by sports units as part of the curriculum and students who did not, in their extra-curricular participation in physical activity.

For the fourth research hypothesis, the independent variable is - the application of the pedagogical program composed by sports units as part of the curriculum in higher education, and the dependent variable is their voluntary extra-curricular physical activity (PA).

These questions arise from the research hypothesis that there will be a difference between students who participate in mandatory sports units during their academic studies, and students who did not participate in physical activity during their high education studies, regrading motivation for physical activity and health awareness. It is assumed that students who had taken sports courses in their first academic year became more physically active and of higher health awareness and motivation to exercise, which in turn will affect their health and well-being.

The research methodology used the mixed-methods approach, including qualitative (semi-structured interviews) and quantitative (closed-ended questionnaires) tools (Teddlie & Tashakori, 2003).

Mixed methods research "is a research design with philosophical assumptions as well as methods of inquiry. As a methodology, it involves philosophical assumptions that guide the direction of the collection and analysis of data and the mixture of qualitative and quantitative data in a single study or series of studies. Its central premise is that the use of quantitative and qualitative approaches in combination provides a better understanding of research problems that either approach alone" (Creswell & Plano Clark, 2007:5).

Ten sports instructors and sports centers' directors of various academic institutions will be interviewed in order to receive information about students' usage in the sports facilities on campus.

In addition, in the second part of the study, the research population will be composed of under-graduate students who had taken sports courses as part of the curriculum in their first academic year, hereafter the target group, and under-graduate students who did not take such courses, hereafter the control group. In total, the target group consists of 100 students from the Technion (after a course in sports), and the control group consists of 100 students from Tel Aviv University (non-sports course).

Chapter I: Physical Activity – A Multidimensional Analysis

This research sought to explore the significance of mandatory sports courses in undergraduate programs in higher education in Israel, and to investigate the impact of physical education units in higher education as a pedagogical program on promoting physical activity among students. The theories that were chosen to underpin this study included the self-determination theory (SDT), the Self-Enhancement Theory, Trans-Theoretical Model, and the Salutogenesis model.

The Self-Determination Theory (SDT) (Deci & Ryan, 2008; Lukwu & Luján, 2011) refers to a human personality and motivation theory that utilizes customary empirical approaches, while using meta-theory of the organism that emphasizes the significance of fostering internal forces for personal and behavioral self-regulation. Obviously, SDT investigates inherent growth tendencies and innate psychological necessities, which are the fundamental elements constituting motivation and personality integration, in addition to the conditions that develop these positive processes.

Another theory that was used in this research is the Self-Enhancement Theory (Taylor, 1983) that represents an adaptive force, which is connected to good health and well-being. Taylor and Brown's review (1988) shows that a healthy person, in contradiction to an unhealthy or troubled person, often engages in a variety of self-enhancing behaviors such as positive self-evaluations, extravagant perceptions of personal control and optimism for the self that might even be unrealistic. As a result, self-enhancement is considered a significant psychological factor in understanding why people remain positive and resilient when they face negative experiences (Hoyle, Kernis, Leary, & Baldwin, 1999).

The original elements of the Trans-Theoretical Model show that individuals go through stages in a linear fashion, but now it is understood that the stage progression can probably flow in a cyclical manner, while individuals progress and regress through the phases in their effort to create a critical change. The parallel validity for a stage model of physical activity received a partial support since validated measures of physical activity were able to differentiate between phases. However, one should understand the insights with slight reservation since the measures that were used to classify individuals into phases are somewhat varied. Moreover, many studies have compared the physical activity scores across collapsed phases (Marshall & Biddle, 2001; Prochaska & Velicer, 1997; Prochaska, Wright, & Velicer, 2008).

The Salutogenesis model (Antonovsky, 1979, 1987) draws on the premise that the person and their health are a complex system which contain them holistically. It focuses on health promotion ideas and is used as a fundamental theory for developing other theories for research and for practical use in the field of health promotion. The theory guides health promotion practitioners to emphasize health factors rather than risk factors.

In the light of the theories that were chosen to underpin the study, the conceptual framework consists of the concepts that derive from the theories.

The Sport Commitment Model (Adherence)

Six antecedents of sport commitment comprise the sport commitment theory: sport enjoyment, involvement alternatives, personal investment, social constraints, involvement opportunities, and social support (Scanlan, Carpenter, Simons, Schmidt, & Keeler, 1993; Sallis, Calfas, Alcaraz, Gehrman, & Johnson, 1999). Each one of these antecedents impacts the degree of commitment that athletes implement to their sport. The six antecedents are theoretically proposed and empirically validated as predictors of sport commitment (Alexandris, Zahariadis, Tsorbatzoudis & Grouios, 2002; Waldron & Troupe, 2008; Younga & Medic, 2011; Lukwu & Luján, 2011; Sallis et al., 1999).

Physical activity

Physical activity is defined by the World Health Organization (WHO) report as any movement that is done by the body and by skeletal muscles that necessitates investing energy. The bodily movement may include any exercise that is purposeful, repetitive, structured, and

designed, or other bodily activity as part of play, active transportation, house work, recreational activities, and organized work (WHO, 2007).

Physical activity as a lifestyle

The research literature presents physical inactivity as a critical risk factor for stroke, cardiovascular disease, diabetes, obesity, hypertension, several cancer diseases and osteoporosis. An estimation of 950,000 Americans die every year from cardiovascular diseases. Despite attempts made by numerous health professionals and organizations to inspire changes in individuals' physical activity habits, a high proportion of American adults still remain inactive (Morrow et al., 2004; Prochaska et al., 2008; Aşçi, 2003). An amendment in diet and lifestyle, in addition to engaging in daily physical activity behaviors are the main factors that can lower health risks. In fact, any modest but continuous changes in lifestyle can critically reduce morbidity and exactly those changes have the greatest influence. Thus, the elements that will lead to significant changes in life-quality and health are changes in dietary and lifestyle patterns, and acquisition of new habits of exercise.

Barriers on physical activity

Physical activity practiced on a regular basis is associated with a great number of physical, psychological and physiological benefits, as well as plays an exceptional role in preventing a variety of illnesses. Leading a sedentary lifestyle, on the contrary, is closely connected with the health issues mentioned in this study which can become a serious health problem both in childhood and in adolescence, and particularly among university students (Irwin, 2007; Lovell, Ansari, & Parker, 2010).

Culture of physical activity

The research literature presents physical culture as an important factor in a person's life. Physical activity culture includes elements which define a person's personality and reflects beliefs of physical activity as habits of good health.

Additionally, culture of physical activity includes values and beliefs of physical culture, physical education and physical culture striving for excellence. These perceptions affect the way a person perceives their life and their health in terms of a way of life, acquiring skills and

knowledge of a healthy lifestyle, and a balanced spiritual, psychological, and developmental health (Khalajtsan, 2014).

Adherence to physical activity

Adherence to physical activity is a concept deriving from the Sport Commitment Model. Studies show that personal investment and satisfaction of physical activity are strong predictors of adherence to exercise and may suggest that a person would tend to adhere to physical activity as a way of life (Carpenter et al., in Wilson et al., 2004). Further studies (Waldron & Troupe, 2008) show that the sports coaches have a significant role in adherence to physical activity when they serve as role models of a healthy lifestyle to persons engaged in physical activity.

Motivation for physical activity

The research literature refers to motivation as any energy, direction, persistence and influence that are realized by operation and intention. Motivation is important because it drives people to action, including to physical activity. Therefore, it is highly significant that people in roles such as teachers, principals, religious leaders, coaches, and medical personnel, will be able to motivate people to be physically active as a way of life (Deci & Ryan, 2008; Lukwu & Luján, 2011).

Physical activity as a pedagogical program in Israeli higher education

Despite studies that emphasize the significance of physical activity during academic studies, physical activity in higher education in Israel has deteriorated in recent years. Sport as a mandatory pedagogical element in the academic curriculum has disappeared a decade ago, mainly due to budgetary reasons. For example, the sports unit activity at Tel Aviv University and the Hebrew University in Jerusalem has almost closed completely, Ben Gurion University in the Negev sustains an optional sports unit that students can sign up for a limited number of courses on a voluntary basis, the colleges do not have sports units but maintain competitive teams for the ASA games, and the only academic institution that still sustains compulsory courses in sports is the Technion institute in Haifa. Figure I.1 presents a visualization of the conceptual framework.

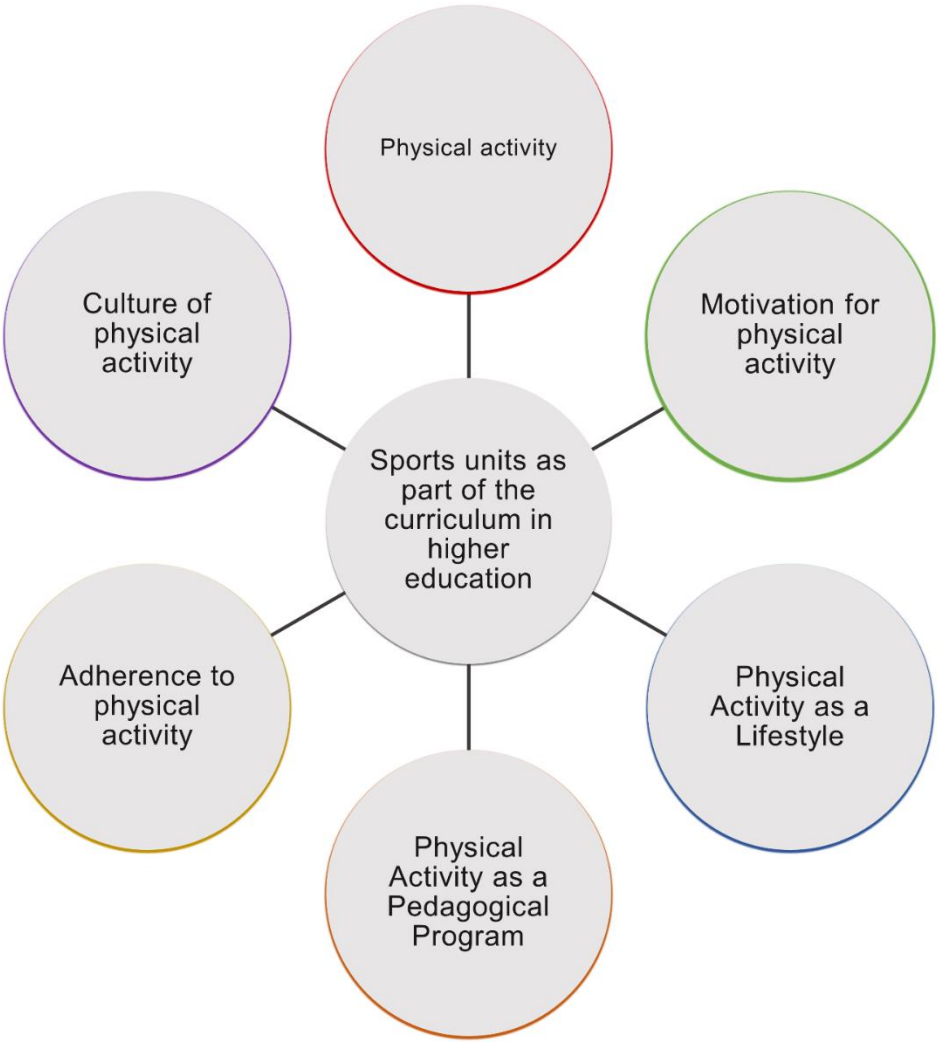

Figure I.1. *The conceptual framework model.*

The conceptual framework model suggests that sports units as part of the curriculum in higher education offer physical activity as promoting a lifestyle of health to the students during their academic studies. Furthermore, the conceptual framework model shows that motivation to physical activity serves as an impetus that can drive students to engage in physical activity on a regular basis on the way to develop adherence to physical activity in formulating habits and procedures that might lead to a culture of physical activity. The components of the conceptual framework complement each other in the way they all link to the focus of this research, i.e., sports units as part of the curriculum in higher education

Additionally, physical activity as a way of life bears potential to raise the inclination of students at the academia to adopt a healthy lifestyle when they finish their academic studies. This study is significant because the academic studies is the point in life when the institution can still

influence people to adopt physical activity as a way of life before they start building their career at work and stating their family.

Chapter II: The Description of the Research Entitled: The Influence of Physical Education in Higher Education on Promoting Physical Activity Among Students

II.1. Research Aims

1. To explore the significance of mandatory sports courses in undergraduate programs in higher education.
2. To investigate the impact of physical education units in higher education as a pedagogical program on promoting physical activity among students.

II.2. Research Questions

Main Research Question

- Will physical activity courses make students more physically active and increase their health awareness and motivation to exercise?

Subsidiary Research Questions

1. What perceptions exist regarding the significance of mandatory pedagogical sports courses in undergraduate programs in higher education?
2. What is the impact of physical education units in higher education as a pedagogical program on promoting physical activity among students?

II.3. Research Hypotheses and Variables

II.3.1. General Research Hypothesis and Research Hypothesis 1

General Research Hypothesis

The application of a pedagogical program composed by sports units as part of the curriculum in higher education efficiently promotes physical activity among students.

Research Hypothesis 1

A difference will be found between students who took part in the pedagogical program composed by sports units as part of the curriculum and students who did not, in their motivation level to physical activity (PA).

The independent variable - the application of the pedagogical program composed by sports units as part of the curriculum in higher education,

The dependent variable - their level of motivation to physical activity.

Research Hypothesis 2

A difference will be found between students who took part in the pedagogical program composed by sports units as part of the curriculum and students who did not, in their adherence level to voluntary physical activity.

The independent variable - the application of the pedagogical program composed by sports units as part of the curriculum in higher education,

The dependent variable is the grade of adherence to voluntary physical activity (PA).

Research hypothesis 3

A difference will be found between students who took part in the pedagogical program composed by sports units as part of the curriculum and students who did not, in their life style level.

The independent variable - the application of the pedagogical program composed by sports units as part of the curriculum in higher education.

The dependent variable is the grade of awareness to a healthy lifestyle.

Research hypothesis 4

A difference will be found between students who took part in the pedagogical program composed by sports units as part of the curriculum and students who did not, in their extra-curricular participation in physical activity.

The independent variable - the application of the pedagogical program composed by sports units as part of the curriculum in higher education.

The dependent variable – Students' (voluntary) extra-curricular physical activity (PA).

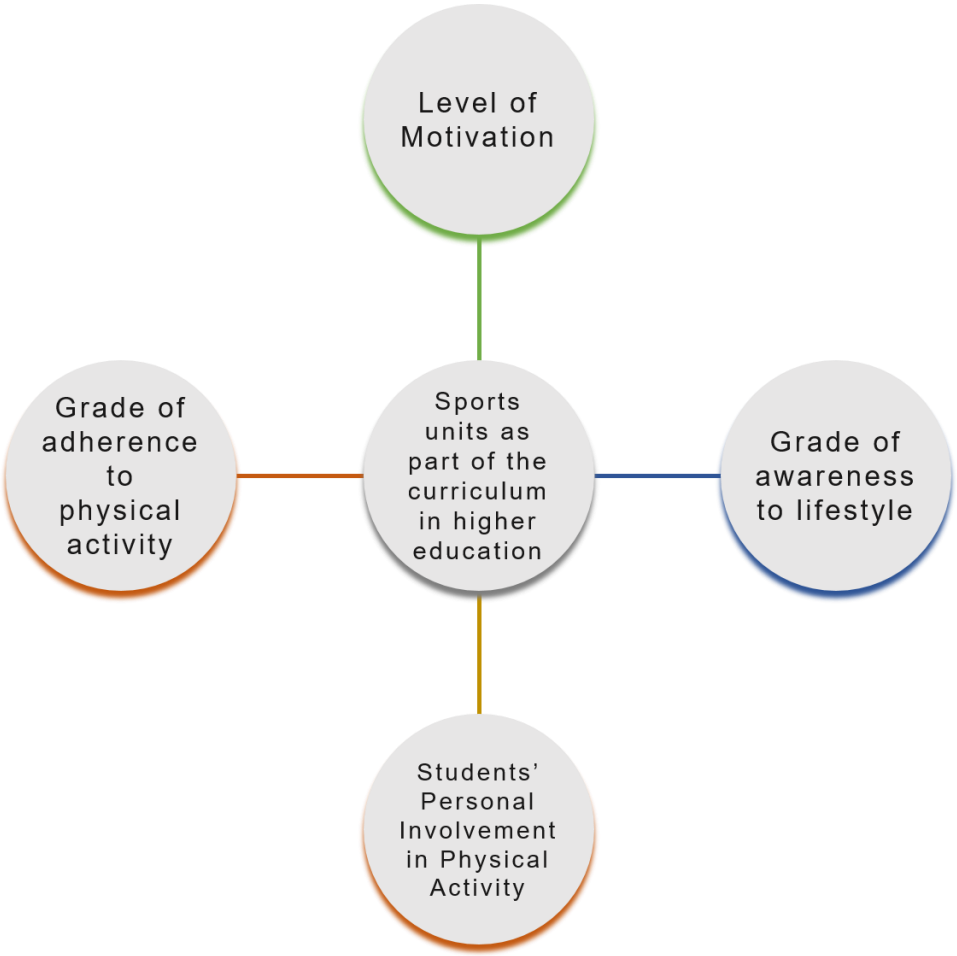

Figure II.2. *A visual model of the research.*

Figure II.2 shows the variables that were formed for this research to formulate the hypotheses. Thus, the independent variable 'sports units as part of the curriculum in higher education' stands in the center of the model to show how the other variables are linked to it. In all four hypotheses, the dependents variables are level of motivation, grade of awareness to healthy lifestyle, grade of adherence to physical activity and level of motivation.

Research Paradigm: A mixed methods research

After a period of competition and disagreement between supporters of quantitative and qualitative paradigms, there was a recognition of the right to coexistence and after that, there was a period of empowerment by the qualitative research (Katz, 1997), and we are now witness to openness, growth and to the creation of a pluralistic atmosphere, which combines both methods (Denzin & Giardina, 2006).

According to the paradigmatic aspect, paradigms are composed from different assumptions and philosophical positions in relation to reality, knowledge, methodology, and values. But these assumptions are logically independent of each another, and precisely because of this they can be compatible and can be integrated in different ways. The most important thing in managing research and in making practical research decisions is the practical characteristics and the demands of the research context or problems, rather than the abstract philosophical paradigms (Patton, 2002).

While paradigms are made by different assumptions and philosophical positions regarding the reality, knowledge, methodology, and the values that need to be preserved, the assumptions of the different paradigms can be integrated on the basic level. Methods, which exist in different paradigms, can be adapted and integrated, as long as they are being maintained in a distinct manner, so the it will be possible to have a methodological-paradigmatic integrity (Patton 2002).

In the 21st century, more and more researchers combine methods in a variety of ways. The combination of the methods began with the addition of one method to another (to extract more information from the database), and reached a full merger of different methods. According to researchers, this allows better understating of the researched subject (Greene & Caracelli, 2003):

A. Integrating the methods develops general understanding: understanding of individual's profile, and only details, understanding of an entire social world, rather than a single interest or description.
B. The combination develops a valid, reliable, compelling, and less biased understanding than just one method. The combination enables better verification of information and the development of stronger claims regarding the collected data and their analysis process (triangulation).
C. By combining the methods, one can take advantage of both methods and develop a deeper understanding of the data. The quantitative method creates scope, and the qualitative method reveals new ideas (tacit knowledge).
D. Better understanding: a higher level of understanding regarding the values of the research and also a better understanding regarding the perspectives, and the different positions. This can be achieved from combining the methods.

The important thing in integrating methods is not whether the data appear in the form of quantitative or qualitative data, but rather the general position of the researcher and their perception and explanation regarding the results (Greene & Caracelli, 2003).

There are two types of research arrays that combine methods (Morse, 2003): component designs and integrated designs. This research is based on the integrated designs arrays. There are three main models of integrated research arrays:

1. Triangulation array: An array that uses two methods at the same time, uses one with a higher priority over the other, or uses both with an equal priority, to evaluate these phenomena and to obtain a higher validity for the results.
2. Complementarity array: The results of one method advance, interpret, expand, or clarify the results obtained from using another method, or when two methods which evaluate different aspects of the same phenomenon at the same time or one after the other. Sometimes one method is more dominant.
3. Expansion array: When different methods are being used to study different phenomena (at the same time or one after the other), with or without a preference of one method over the other.

According to the study, the findings can be analyzed in two different ways: The first one is to find at the end of the research the connections between the various results of the analysis (according to different methods), and the second one is to perform an integrated and integrative data analysis, where the findings of one approach are the basis for building research tools to the other approach (Morse, 2003).

II.5. Research Design

Table II.1. *The current research design.*

	Aim	**Research Methods**	**Research Tool**	**Research Population**	**Data Analysis**

Stage 1: Qualitative Research	To explore the significance of mandatory sports courses in under-graduate programs in higher education.	Interviews	Semi-structured interviews.	10 Sports units' managers and directors.	Content Analysis
Stage 2: Quantitative Research	To investigate the impact of physical education units in higher education as a pedagogical program on promoting a culture of physical activity among students. To test Hypothesis 1 regarding the impact of sports units in higher education on motivation to engage in physical activity and awareness to healthy lifestyle. To test Hypothesis 2 regarding the impact of sports units in higher education on adherence to physical activity.	A survey	Closed-ended questionnaire	100 students who were exposed to sports units at the university. 100 students who were not exposed to sports units at the university.	Statistics

Table II.1 presents the aims of each stage in the research, then methods and tools that were used to achieve those aims, and the research population that was used to provide data and finally the data analysis method that was employed to analyze those data. All in all, 210 respondents participated in this study. Ten sports units' managers in academic institutions in Israel provided data in the qualitative stage of the research through semi-structured interviews. In

addition, 100 students who were exposed to sports units at the university responded to a closed-ended questionnaire, and another group of 100 students who were not exposed to sports units at the university responded as well. In the next section we present the operational approach of the research variables.

Chapter III: Findings

III.1. Findings Emerging from Research Question 1: What Perceptions Exist Regarding the Significance of Mandatory Pedagogical Sports Courses in Undergraduate Programs in Higher Education?

Category 1: The number of active students in the unit vs. the number of students in university

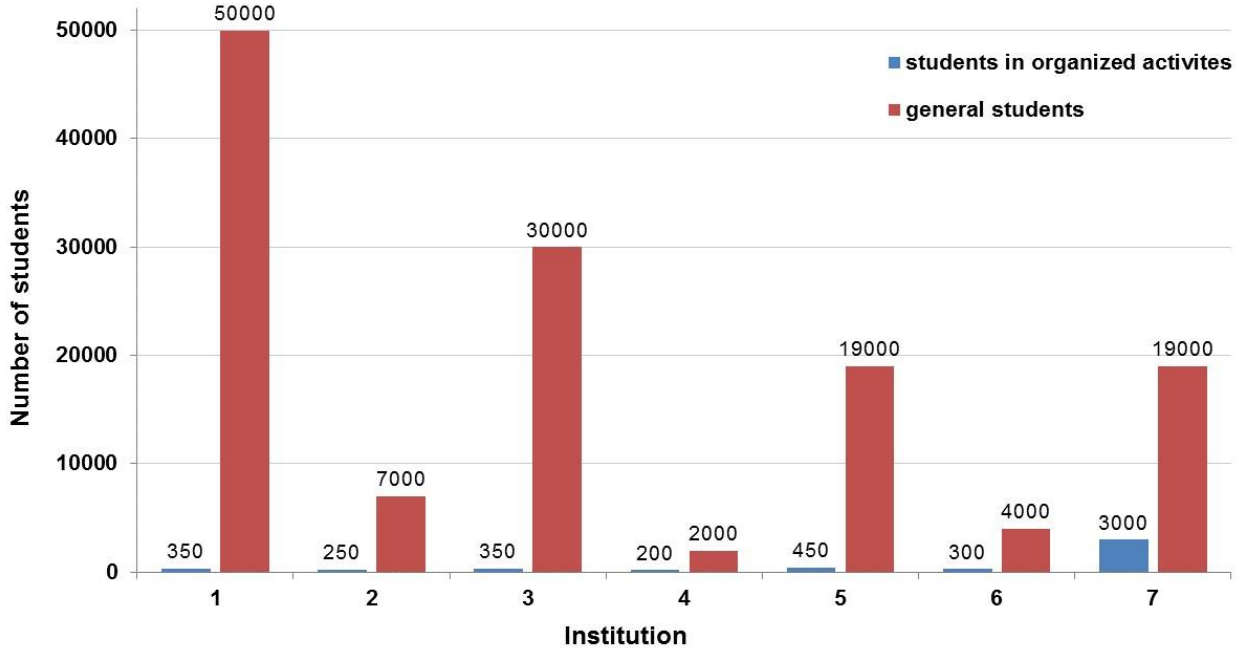

Figure III.3. *The number of active students in the unit vs. the number of students in university.*

Figure III.3 shows the numbers of students in seven higher education institutions. For example, in institution No. 1, out of 50,000 students enrolled, only 350 of them reported to be engaged in physical activity that is organized by the university. In institution No. 7, 19,000 students enrolled, out of which, 3,000 students reported to be engaged in physical activity.

Table III.2. *Perceptions regarding the significance of mandatory pedagogical sports courses in under-graduate programs in higher education: Six categories emerged.*

Category 2: The scope of physical activity in the unit	*"There is a sports unit mainly focused on Academic Sports Organization - ASA competitions, there is no sports center."*	
Category 3: Continuation of the exercise after graduation	*"The influence is certain, many studies have demonstrated the link between having a healthy, sportive lifestyle in the student years and its' continuation into adult life."*	
Category 4: Healthy Lifestyle	*"A student who received tools for physical activity and a healthy lifestyle will continue this activity in the future, this is a simple and clear equation."*	
Category 5: Creating a culture of physical activity at the institution itself	Hindering Factors	• *"The lack of a Sports center, tremendous difficulty in accessing all the students."* • *"Financial considerations preventing the creation of sports activity with essential contribution to the students and society."*
	Promoting Factors	*"Sports as a critical factor in an academic climate, both from the sportsmanship and ethical level, and on the level of the university's image."*
Category 6: Background on the formation of the sports unit and its manager	The University sports unit	*"I went to a private meeting with the President of the IDC Herzliya, and I proposed the formation of a university sports unit, as it is customary in the United States. Sharing this vision, we formed one of the leading university sports units in the country."*
	Personal background of the unit manager	*"I am a rowing coach and a former professional athlete."*

In summary, the findings show that pedagogical sports units ought to be mandatory courses in undergraduate programs in higher education.

The analysis of the research was conducted with 10 sports center managers in 10 different academic institutions and found six main categories, presented in Table III.2.

III.2. Quantitative Findings emerging from this study

Findings emerging from hypothesis 1: A difference will be found between students who took part in the pedagogical program composed by sports units as part of the curriculum and students who did not, in their motivation level to physical activity (PA).

The research hypothesis was confirmed with positive motivation

A statistically significant difference was found in the level of positive motivation, which was higher among students who had taken a sports course, compared with students who did not take a sports course.

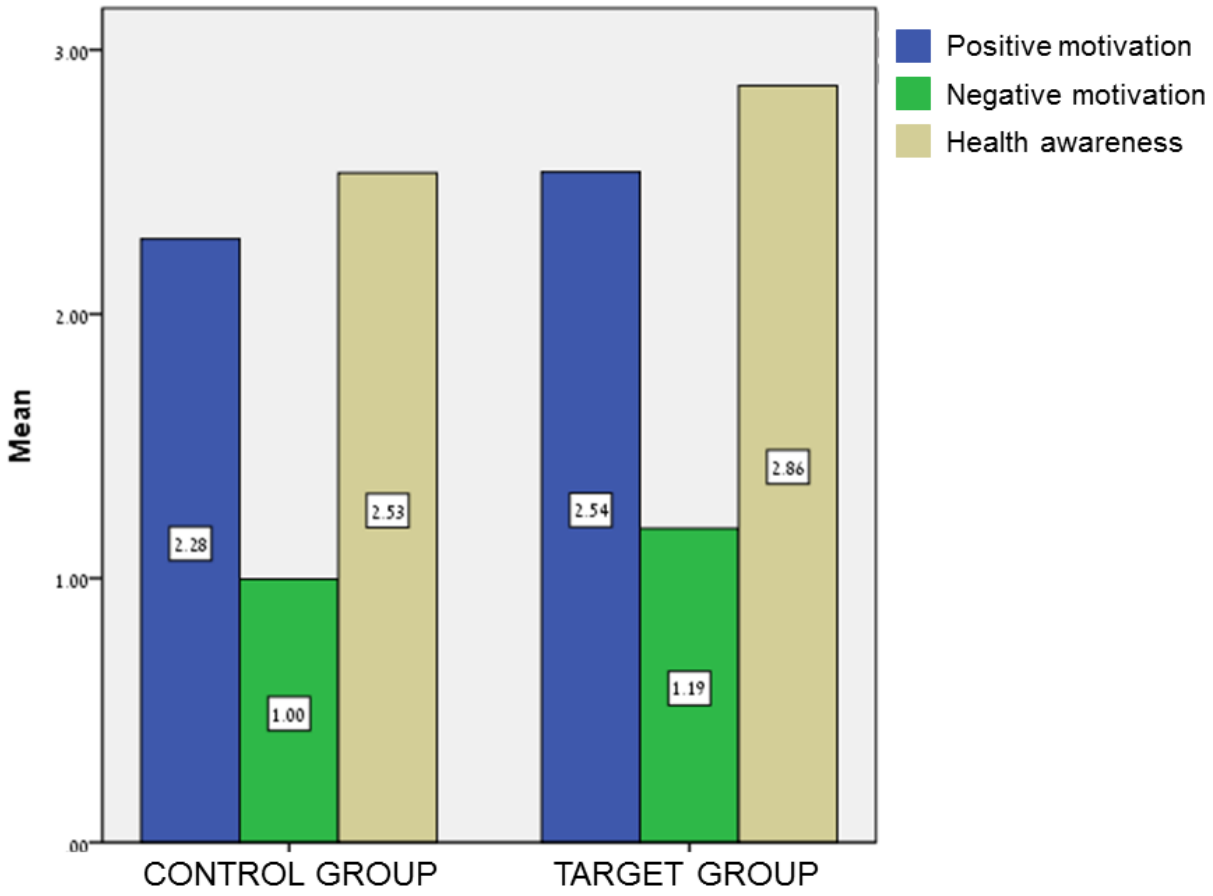

Figure III.4. *Differences between students from the target group and the control group in the positive motivation, negative motivation, and health awareness index variables.*

The volume of activity among students who work with weights is statistically higher among students studying at Tel Aviv University, while the volume of activity among students playing ball games was statistically higher among students studying at the Technion.

Findings related to hypotheses 2: A difference will be found between students who took part in the pedagogical program composed by sports units as part of the curriculum and students who did not, in their adherence level to voluntary physical activity.

Table III.3. *Comparison between the target group and control group in the years engaged in physical activity at least twice a week.*

Number of years of physical activity	**Control Group**	**Target Group**
Less than a year	8%	10.4%
Between one and three years	14.7%	17.9%
Over 3 years	77.3%	71.6%

The research hypothesis was not confirmed.

The difference of percentage between the institutions and students who are engaged in regular activity at least twice a week, was not statistically significant in both institutions.

Findings related to hypothesis 3: A difference will be found between students who took part in the pedagogical program composed by sports units as part of the curriculum and students who did not, in their life style level.

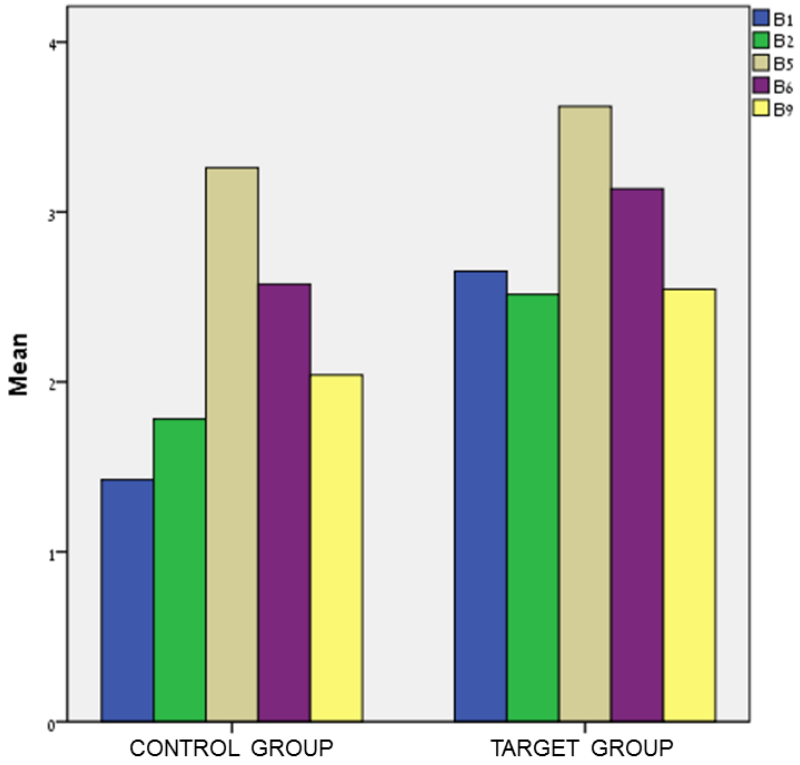

Figure III.5. *Statistically significant differences between the target group and the control group in items indicating health awareness.*

The research hypothesis was confirmed.

A statistically significant difference was found in the level of health awareness, which was higher among students who had taken a sports course, compared with students who did not take a sports course

Findings related to hypotheses 4: A difference will be found between students who took part in the pedagogical program composed by sports units as part of the curriculum and students who did not, in their extra-curricular participation in physical activity.

Table III.4. *Comparison of percentage of performance of a physical activity (reporting rate), between students from the target group and students from the control group.*

Physical Activity	**Control Group (N = 100)**	**Target Group (N = 100)**	**χ^2**	***p***
Walking outdoors	39.5%	40.3%	0.010	0.920

Fitness class (Aerobics / step / fit ball / body shaping, etc.)	32.9%	26.9%	0.616	0.433
Dancing	18.4%	14.9%	0.312	0.577
Cycling outdoors	9.2%	11.9%	0.283	0.595
Swimming	18.4%	38.8%	7.844	0.007
Jogging	56.6%	70.1%	2.811	0.094
Gym cardio machines (Running, bike, stepper, ski)	36.8%	31.1%	0.478	0.489
Weights	42.1%	53.7%	1.938	0.165
Ball games (basketball, soccer, volleyball, tennis, Newcomb)	19.7%	26.9%	1.019	0.313
Yoga / Feldenkrais / Pilates	32.9%	31.3%	0.039	0.843
martial arts	5.3%	6.0%	0.034	0.859
Walking daily (Work, school, errands)	67.1%	25.4%	24.805	0.000
Climbing stairs (instead of the elevator)	65.8%	26.9%	21.631	0.000
Cycling (non-electric) daily (Work, school, errands)	15.8%	10.4%	0.882	0.348

The research hypothesis was not confirmed.

Both the percentage of students engaged in activity, and the volume of activity - in most sports there was no significant difference between students who had taken a compulsory sports

course (Technion institute students) and students who did not take a compulsory sports course (Tel Aviv University students).

CHAPTER IV: CONCLUSIONS AND COMMENDATIONS

IV.1. Factual Conclusions

IV.1.1. Factual Conclusions Relating to Hypothesis 1: A Difference Will Be Found Between Students Who Took Part in the Pedagogical Program Composed by Sports Units as Part of the Curriculum and Students Who Did Not, in Their Motivation Level to Physical Activity

The conclusions that emerged from the discussion of findings show that the hypotheses that have been confirmed are about motivation for physical activity and for physical activity awareness.

This research shows that awareness and motivation are two critical components for healthy lifestyle and for maintaining health.

The findings show that the amount of physical activity is not the main reason for health, and it is well known that without understanding the processes that occur in our body, without dealing with issues like nutrition, awareness of the health risks of smoking, and reading professional literature, our chances to be healthy are not very high.

IV.1.2. Factual Conclusions Relating to Hypotheses 2 & 3: A Difference Will Be Found Between Students Who Took Part in the Pedagogical Program Composed by Sports Units as Part of the Curriculum and Students Who Did Not, in Their Adherence Level to Voluntary Physical Activity, and a Difference Will Be Found Between Students Who Took Part in the Pedagogical Program Composed by Sports Units as Part of the Curriculum and Students Who Did Not, in Their Life Style Level

The unconfirmed hypotheses, which talk about adherence in physical activity and exercise, teach us once more that unlike what was hypothesized, the physical activity units in themselves do not cause an increase in the volume of physical activities among students.

Will students who are more knowledgeable and aware take better care of their health and become more active in the future? The findings that emerged from this study show that they probably will.

IV.1.3. Factual Conclusions Relating to Hypothesis 4: A Difference Will Be Found Between Students Who Took Part in the Pedagogical Program Composed by Sports Units as Part of the Curriculum and Students Who Did Not, in Their Extra-Curricular Participation in Physical Activity

The findings show that participation in sports courses that are part of the curriculum will lead to more positive motivation and less negative motivation. The courses will increase the awareness of physical training but will not necessarily make students stay active and adhere to physical activity as a way of life.

IV.2. Conceptual Conclusions: Rethinking Adherence to Physical Activity and Creating a Culture of Physical Activity through Change in Perception

On the conceptual level, the research findings show that physical activity as part of the structured curriculum in higher education institutions does not result in increased physical activity nor in the continuation of physical activity after graduation. Rather, participation in physical activity as part of the higher education curriculum increases positive motivation for exercise and reduces the negative motivation for physical activity, as well as raises awareness of the importance of physical activity. In other words, the change in perception and understanding of the importance of physical activity increases the participation in physical activity during academic studies. The cognitive-consciousness change is what promotes physical activity as a culture throughout life and establishes it as a healthy lifestyle. Figure IV.6 shows the process of cultivating a culture of physical activity in higher education institutions.

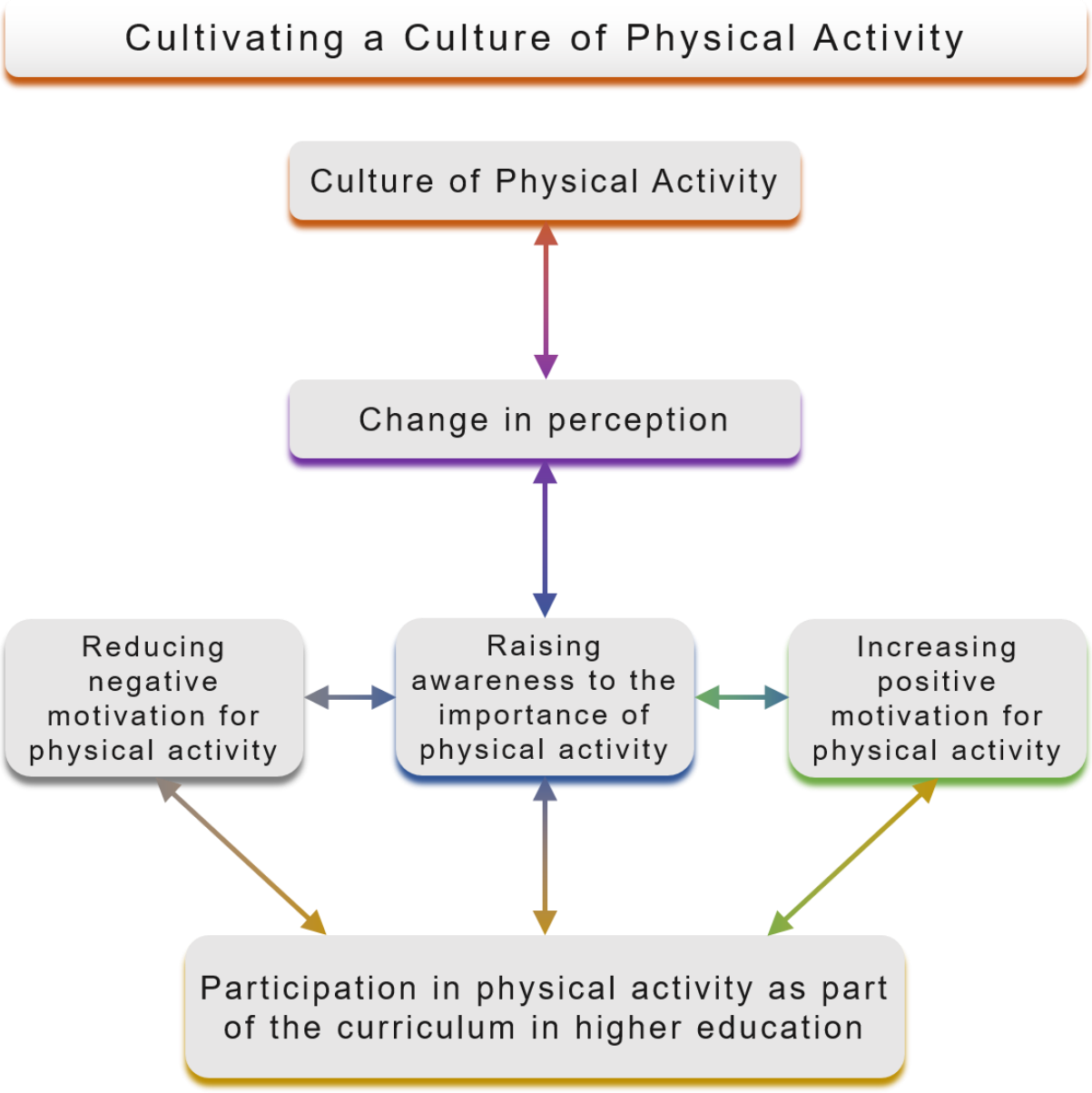

Figure IV.6. *Cultivating a culture of physical activity in higher education institutions (a personal approach derived from the research).*

The conclusions would have been clearer had we seen a significant and clear changes in the amount of physical activity, in the adherence to exercise, and in quantitative data that would highlight the differences between students who underwent compulsory sports courses as part of the curriculum and those who did not. Rather, the conclusions that there was no significant difference in terms of quantity, but in terms of motivation and physical awareness, we have seen

a change, signifies a change in perception, a change that is considered very desirable to the people who work in the field of physical activity.

A student or a person with higher physical awareness is not only a healthier, more conscious person, but also an ambassador who will influence those around them. It is a person who can lead public opinion on the subject and can influence many people, especially if the person is assured and confident. If in addition the person is highly motivated to perform activity and has less negative motivation, then we have an influential student, who influences others just as much as a student who runs or performs activities, or from a student who is an active athlete that has been practicing for many years.

In summary, the approach of the unit managers to sport in the academy today is divided. Many of them believe in competitive sports, in sports to win competitions, and to preserve the prestige of the academic institution. Additionally, the research findings show that the sports units managers believe that competitive sports can also bring quality of life and desire to perform daily sports as a complementary step to stimulate sports on campus. In contrast, the old school of sports unit managers talk about sports and leisure culture, that their ultimate goal is to create a sporting life at the campus.

The volume of sports activity on the campus is very important, but the creation of a healthier campus and academy is gained through an understanding of the sports processes and especially the existence of a permanent and continuous sports framework during studies and as part of the existing curriculum.

IV.3. Recommendations and Practical Implications

The results of the study lead to a number of recommendations that can help the sports culture in Israel in general, and academic sports culture in particular:

1. Clearly and unequivocally, sports units as part of the academic sports program are of crucial importance. Therefore, this study and its findings should be presented to the various university administrations and show the importance of the conceptual change, and its impact on students' motivation and their physical awareness. These effects are worth the marginal cost of these courses to institutions of higher education.
2. Popular and holistic sport activities should be added in institutions of higher education. The findings of this study showed that sports courses are not enough, but sports events such as tournaments, races and competitions should be added, which will include as many

students as possible to raise the awareness of all universities and not only the awareness of the students in sports courses.

3. The students are influenced in the sports background and physical awareness, especially after they understand the processes. There is a need to add a variety of teaching methods, and various types of physical activity, including lectures and workshops for a healthy lifestyle.
4. A healthy campus is primarily needed for understanding the physical awareness. On campuses where the entire campus participates in the health and sports process, the students are more affected and have more physical perception and motivation.
5. The competitive sports teams are important to the institutions themselves and the managers of the sports units, but the teams' activity have no effect on the amount of activity, the nature of the activity, motivation and physical awareness. The teams meet a specific need for winning competitions and marketing, but have very little to do with sportive physical activity or physical awareness.
6. The study shows that the managers of the sports units maintain a sporty lifestyle on their own, or were previously outstanding athletes in their field, and they serve as role models for students participating in sports units. Therefore, it is recommended to appoint managers who are themselves physically active to be an example for students to adhere to physical activity and a healthy lifestyle.

IV.4. Contribution to Knowledge

IV.4.1. Contribution to Theoretical Knowledge

First, this is a unique study that has never been carried out in Israel or around the world. These courses and student sports framework are unique only to Israel, adding to the innovation and originality of the research. This study developed an evidence-based conceptual framework that describes the cultivation of a culture of physical activity through participation in curriculum-based sports units. The conceptual conclusions contribute to knowledge in the field of curriculum development for curriculum-based physical activity in higher education. The study was based on theories of quality of life of students (Stoakes & Suzuki, 2011), the effects of exercise on achievements (Quintiliani, Bishop, Greaney & Whiteley, 2012), and promoting a culture of physical activity among students (Li, Lu, & Wang, 2009), and contributed to knowledge in these fields. The study was also based on theories in motivation for physical activity, namely, the Self-

Determination Theory (SDT) (Deci & Ryan, 2008; Lukwu & Luján 2011), the Self-Enhancement Theory (Taylor, 1983), the Sport Commitment Model (Scanlan, Russell, Beals, & Scanlan, 2003), The Salutogenesis model (Antonovsky, 1996), as well as expanded the existing knowledge in these fields through the conceptual framework developed in this study.

The contribution of the study is by isolating subjects that have been studied many times and differentiating them on a student population dealing with a very unique subject.

The field of study regarding the impact of a specific course exists, but not regarding curriculum-based sports courses, and certainly not on the different variables such as level of motivation, adherence, physical awareness and the amount of activity.

The unique study also combines quantitative data and cultural and environmental influences that are rarely found in prior studies.

Also, for the first time in Israel, the study carried out a thorough questioning of the sports unit managers about the sports structure and the goals of student sports. This criticism from experts in the field is valuable for analyzing this specific problem.

IV.4.2. Contribution to Practical Knowledge

The contribution of the study to practical knowledge is that the research will be presented to the decision makers at the Council for Higher Education in Israel, who will eventually have to consider that the curriculum-based sports courses have a potential impact on the physical culture, perception and motivation to physical activity. In addition, the conceptual conclusions developed in this study can create a change in the policy of designing academic curricula, and returning physical activity units as a compulsory course for undergraduates in Israel and around the world. Resources will have to be allocated for returning the sports units to the curriculum, and their re-operation in all institutions of higher education.

IV.5. Future Research

Every research serves as a continuation of another research. In order to continue the cycle of gathering knowledge in the field, we propose a number of ideas for future research.

a. Examining the types of activity and sports types that lead to greater motivation to perform physical activity.

b. Research that will examine whether an alternative can be found for sports courses (e.g. lectures, classes, or tournaments) that will lead to the same effect.
c. Research that will examine whether a healthier university environment, such as a healthy cafeteria, cycling and walking trails, and curriculum-based running and walking groups will create further changes and increase student activity and awareness of physical activity and health.

CHAPTER V: Present Status and Future Perspectives on Sport and Physical Activity as a Means for Developing a Culture of Physical Activity Among Students

V.1. The Description of the Experimented Program in the Research

In my acquaintance with the leaders of academia, as the director of the sport unit at the largest university in Israel for many years, and as a result of the findings of this study, I am aware that some of the reasons for not having sport courses in their current form are that physical activity is seen as a leisure activity and do not understand its importance. With the findings and conclusions of this work, combined with the pedagogic program that I present here, I am convinced that a more appropriate and comprehensive understanding of the importance of the subject will be accepted. Furthermore, a sample program will be presented that will address the main issues at hand: physical activity, physical awareness, physical understanding, quality of life, proper nutrition, motivation for physical activity and a healthy lifestyle.

V.1.1. Fundamentals and Specifications of the Proposed Program

1. During the course of studies, each student will be required to take one annual course of 60 hours per year from the first to the third year of studies.
2. The course will combine physical and theoretical activities and will include final exams and academic grading.
3. Without successfully completing the course, the degree will not be considered as completed.
4. The courses will be suitable for physically inactive end even physically disabled students.
5. A committee will be formed, that will discuss receiving exemptions and easements.
6. The best teaching staff will be recruited in each field.

7. The program will be implemented in the first year as a pilot in two leading faculties.
8. Mandatory attendance in these courses will be set at 80%.
9. Medical approval will be required for the practical part of the course, pursuant to the Israeli Sports Law.
10. The course syllabus will be approved by the Council for Higher Education as part of the academic curriculum (and of course it will begin as a pilot).

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