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Perception of Adequacy on Sports Facilities during Schools' P.E. and Extra Leisure Activities in a Cohort of 1544 Teens

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Abstract: The aim of this qualitative study is to define the perception of adequacy on sport/s facility/ies (SF) during physical education and school sports (PESS) and extra school physical activities (PA). The study population consisted of 1544 students aged between 11 and 19 years old (F: 49.6%; M: 50.4%; height: 1.7±11.9 m; weight: 55.7±12.4 kg; BMI: 20.2±5.1 kg/m^2). The sample was randomized from eighteen secondary schools in northern Italy, and was divided into two groups depending on the level of education attended: 11 to 14 years old, lower grade (LG); and 15 to 19 upper (UG). Both groups were asked to fill a themed multi-area questionnaire inquiring about the amount of time spent in PA on a weekly basis, the types of SF utilized, and a detailed evaluation of the provided services whilst using the same facilities. Almost eight students out of ten (79.1%) performed PA during extra PESS time. Ranking of SF assessed: 30.9% outdoor fields; 25.4% fitness & health gyms; 21.6% sport halls; 11.2% pools; and 10.9% other facilities types. A total of 31.7% of students perceive their own sports structure comprehensively similar compared with the others of the same category in which they usually act, and 4.6% noticeably lower; highly significant is how, this last data, negatively increase by 88% from LG to UG. Based on a 5-points Likert Scale, the overall perception regarding the adequacy on SF is at a more than acceptable level with an average 3.68±1.1 about PESS, and a 4.0±1.0 for extra leisure PA. Nevertheless, SF could run the real risk of becoming too outdated without good maintenance and focused investments in a short-medium term. Additionally, 41.4% of the sample voted the quality of the SF as "essential" (10.7%), or "important" (30.7%) to reach the personal PA aims.

Key words: sport facility, assessment, physical education, leisure activity, developmental age

1. Introduction

This qualitative study originates from the interest in assessing "how" the sport facilities (SF) are seen and evaluated among a sampled population of secondary teenager students, aged between 11 to 19 years old. Starting with a physical activity (PA) variable, in common among all, that are the compulsory physical education school classes, until investigate the services offered by the SF they regularly use during their daily life PA routine.

According with Bailey et al. (2009), exist educational benefits of physical education and school sports (PESS): physical, social, affective and cognitive. Analysis of the evidence suggests that PESS has the potential to make contributions to young people's development in each of these four broad domains. Perhaps, unsurprisingly,

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there is suggestive evidence of a distinctive role for PESS in the acquisition and development of children' movement skills and physical competence (engagement in lifelong PA). In the social domain benefits are mediated by environmental and contextual factors such as leadership, the involvement of young people in decision-making, an emphasis on social relationships, and an explicit focus on learning processes. In the affective aspect, engaged in PA, has been positively associated with numerous dimensions of psychological and emotional development, yet the mechanisms through which these benefits occur are less clear. The mechanisms by which PESS might contribute to cognitive and academic developments are barely understood; there is, however, some persuasive evidence to suggest that PA can improve children's concentration and arousal, which might indirectly benefit academic performance. Likewise, many of the educational benefits claimed for PESS are highly dependent on contextual and pedagogic variables, which leads us to question any simple equations of participation and beneficial outcomes for people included in developmental age.

A major policy goal of many Ministries of Sport and Health is increased participation in sport to promote health (Ruseski et al., 2014). A growing literature is emerging about the benefits of sport participation on happiness; a challenge in establishing a link between sport participation and happiness is controlling for endogeneity of sport participation in the happiness equation. Findings seek to establish causal evidence of a relationship between sport participation and self-reported happiness using instrumental variables.

At the same time, seems evident the lack of studies that embrace the relationships between SF and samples that are not yet includable in the various adult or elderly ages. For example, among the explored topics in scientific investigations, these categories are highly demanded due to the loyalty procedures in keeping as 'active users' the customers that normally pay a subscription or membership in a sport or specific discipline centre.

Hill and Green (2012) studied the programs delivered by a SF in terms of attractiveness, socializing opportunities and the "sportscape" on frequency of participation at three different types of sport facilities: (1) special purpose, such as health and fitness centers; (2) single-purpose, such as tennis/golf/swimming pool amenities; and (3) multi-use, such as gymnasia. The sportscape has the most impact on participation frequency at fitness facilities, and minimal impact on participation at multisport facilities.

Another relevant research (Pascual et al., 2009), connecting SF to the adult age, studied the association of the availability of sports facilities and socioeconomic environment with jogging, swimming and gym utilization. The number of SF was not related with either swimming or gym use and the indicators of socioeconomic environment were not associated with swimming in either sex, or with gym use in men. The findings of this study do not support the hypotheses proposed in previous investigations to explain the consistent relation between socioeconomic environment and lack of physical activity.

Less importance is, barely, assigned to these conductive evaluations for the population belonging at the school grades, and, in a detail, to the secondary level of education in which the surveyed subjects could already express defined individual opinions and objective points of view. No literature investigations analyzed match a direct comparison between SF in PESS and extra PESS activities.

As affirmed by the latest version of Eurobarometer (2014), related to the Physical Education and Sports in developmental age, is known that the 79% of people between 15 and 24 years old perform sport in different quantities: 17% regularly, 38% with some regularity, and 24% seldom. The 61%, of the sample analyzed, affirm that did vigorous activities during the last week when questionnaire was dosed. No similar findings are provided in including students of the previous age (latest childhood to first adolescence, 11 to 14 yy).

Younger people are more likely to use formal settings; for example, the proportion that uses a health or

fitness centre ranges from 22% among 15-24 years old, to 9% among those aged 55 or over; whereas the use of sport clubs is particularly high among men aged 15-24 (28%). School or university is also a popular location for younger people (23% of 15-24 yy). The reasons of engaging in PA during this age are in relation to improving physical appearance (38%) and having fun (43%).

Again, as affirmed by Sallis et al. (2001), has been evaluated the association of school environmental characteristics with student PA on campus; SF were assessed for area type, size, and improvements. Forty-four percent of areas were outdoor courts, 43% were outdoor fields, and 13% were indoors. Environmental characteristics explained 42% of the variance in the proportion of girls who were physically active and 59% of the variance for boys; school environments, with high levels of supervision and improvements, stimulated girls and boys to be more physically active during PESS.

Another study had the final objective to examine whether school policy (intramural vs. varsity) was predictive of students' likelihood to engage in extra PESS moderate and vigorous PA in specific activity areas (Bocarro et al., 2012). The SF were divided in: baseball, basketball (outside), inside studio, multi-purpose field, football/soccer, gym, open area, tennis.

2. Research Problem

After a detailed scientific review seems necessary to deepen knowledges into this, not already profoundly studied and segmented, topic related to the SF and PA during the developmental age. The decision to create a specific questionnaire, not already validated through other literature researches, seemed necessary due to the lack of focused recognized tools aimed to extrapolate the information required by the team how carried out this investigation.

Succeeding the regular divisions of the selected sample by gender, age, and anthropometric measures, the questionnaire inquires: (1) positivity at the extra PESS activities; (2) both quantities for PESS activities and extra; (3) sports desertion, re-initiation and related motivational figures; (4) SF types utilization; (5) SF evaluations and comparison with foreign SF utilized; (6) inability to fulfill sports and injuries related to SF; and (7) safety information related to SF and supplied qualities needed to gain personal PA objectives.

3. Material and Method

Referred to a total of 1544 students, from different randomized portions of eighteen selected secondary schools (LG: 11–14 yy; and UG: 15–19 yy; Table 1) in the northern area of Italy, were asked to fill a multi-area themed questionnaire, based on a total of 15 literature reviewed items, at the end of a regular PESS class during the school year 2014/2015 (F: 49.6%; M: 50.4%). The research evaluates the amount of time spent in PA on a weekly basis, the types of SF utilized, and a detailed evaluation of the provided services whilst using the same facilities. The studied sample is resumed in Table 2. All the other specific findings obtained are widely faced in the next paragraph that describe the emerged "Results" of each investigated section.

Table 1 Ages Classification

Age (when dosed)	11	12	13	14	15	16	17	18	19	20*	21*	22*
%	0.32	11.72	13.73	18.52	13.47	4.47	14.44	8.10	10.17	3.89	0.97	0.19

* students that, supposedly, have lost one (or more) scholar's year, but were equally included in the evaluation being active part of the selected sample.

Table 2 Anthropometric Measurements

		LG	UG	TOT
Height	*Avg.*	159.57	170.95	165.84
(cm)	±*SD*	10.48	10.96	11.86
Weight	*Avg.*	48.48	61.78	55.73
(kg)	±*SD*	10.05	10.82	12.39
B.M.I.	*Avg.*	18.97	21.32	20.18
(kg/m^2)	±*SD*	3.05	7.21	5.11

4. Results

Analysing the results obtained through the extracted items from the questionnaire, the evaluation begins with the positivity of the sample to the PA carried out during extra-school and spare time and its quantity on a weekly basis, the level of sport desertion, and the re-initiation to PA connected with motivational figures during developmental age.

The entire sample studied, according to the National Regulation Physical Education plan into force, perform PESS on a weekly basis during the scholar years (mean between two and four hours/per week); while, almost eight students out of ten (79.1%), performed leisure sport activities during extra-school time (Table 3). For LG students the average values of extra PESS activities is 3.6±2.9 hours/per week; for UG students is 5.6±4.6 hours/per week; revealing an increase of 54% passing from LG to UG.

Table 3 Positivity and Desertion Extra PESS Activities

	Positivity (%)	Desertion (%)
LG	78.77	65.95
UG	79.33	67.22
Total	79.08	66.65

Of those positives (79.1%), two students every three (66.7%) have already quit, at least once, extra-school PA (maximal level obtained at twelve years old): more than a half (52.6%) have restarted immediately after, and a quarter (26.5%) is no longer returned to practice any. Asking to the student which are the motivational figures that bring them to return to practice sports, among who have desert PA, findings show in the order (on a 5-points Likert Scale): parents (3.1±1.4); friends/peers (2.6±1.4); and P.E. teachers/educators/trainers (2.1±1.2).

Addressing the topic of the ranking of SF assessed among the student's leisure time PA, have been divided in seven main categories, in the order (Figure 1): (1) 30.9% outdoor fields (e.g., soccer, horsemanship, rugby, football, golf, etc.); (2) 25.4% fitness & health gyms (fitness, group classes/dancing, muscle-strength training, specific courses, etc.); (3) 21.6% sport halls (basketball, volley ball, struggle and martial arts, gymnastics, fencing, etc.); (4) 11.2% pools (swimming disciplines included synchronized, water polo, plunges, specific aerobic classes, etc.); (5) 6% outdoor tracks (athletic track and field, cycling, etc.); (6) 4% indoor fields (tennis, bowls, skateboard, rollerblade, etc.); and (7) 1% ice rinks (hockey, ice skating, speed disciplines, etc.).

Additionally, has been performed a complete analysis related to the SF both in the PESS environment and extra (outside/leisure time sports). Through a 5-points Likert Scale (from 1-very bad, up to 5-optimal) were evaluated twelve (from a to l; Table 4) fundamental quality factors. In the order of appearance: (a) global state of the structure (state of wear); (b) current state of the playing field (surface); (c) technical equipments availables

(baskets, goal posts, nets, etc.); (d) quantity of usable specific raw sports material; (e) lighting of the playing field; (f) level of the facility's accessibility; (g) functionality of locker rooms; (h) hygiene and cleaning care of spaces; (i) status of safety machinery (fire extinguishers, anti-panic handles); (j) level of perceived knowledge of teachers/trainers/instructors; (k) willingness and courtesy of the custodial staff; and (l) ratio of available space/number of active users.

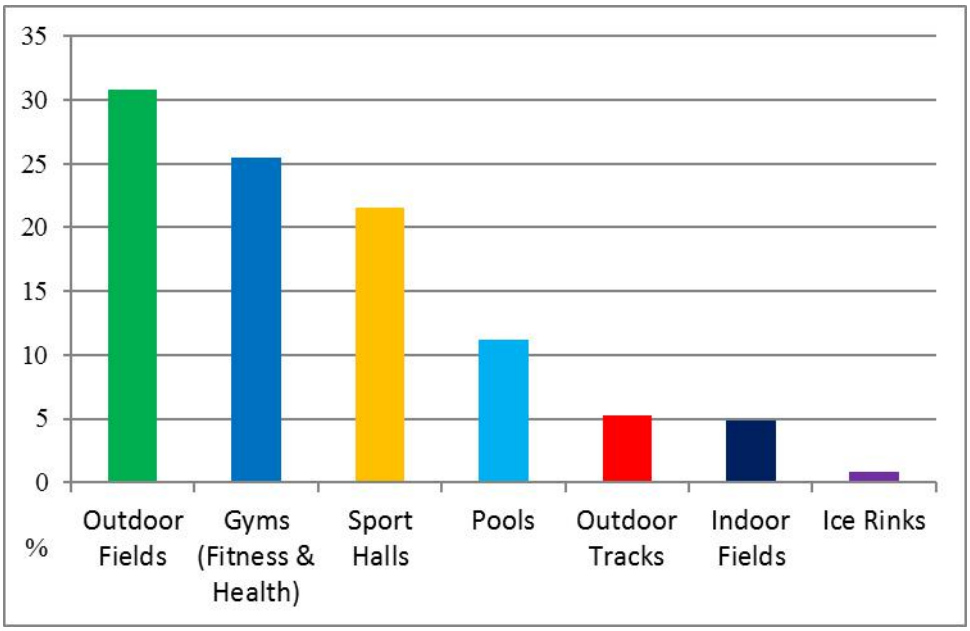

Figure 1 Ranking of SF Analyzed

Table 4 SF Quality Factors in PESS and Extra PESS Activities, Divided per Age Groups

		LG				UG			
		PESS SF		*extra PESS SF*		*PESS SF*		*extra PESS SF*	
		Avg.	*Dev. St.*	*Avg.*	*Dev. St.*	*Avg.*	*Dev. St.*	*Avg.*	*Dev. St.*
a	global state of the structure (state of wear)	3.48	1.07	3.93	0.95	3.45	0.84	3.93	0.87
b	current state of the playing field (surface)	3.77	1.08	4.05	1.04	3.68	0.89	4.01	0.96
c	technical equipments availables (baskets, goal posts, nets, etc.)	3.82	1.08	4.15	0.97	3.62	1.01	4.01	0.99
d	quantity of usable specific raw sports material	3.81	1.03	4.18	1.23	3.59	1.06	4.04	0.97
e	lighting of the playing field	4.01	1.06	4.27	0.97	3.85	1.01	4.15	0.92
f	level of the facilit's accessibility	4.09	1.02	3.98	1.01	3.68	1.13	4.02	1.00
g	functionality of locker rooms	3.38	1.22	3.85	1.17	3.23	1.04	3.79	0.97
h	hygiene and cleaning care of spaces	3.45	1.20	3.73	1.14	3.20	1.10	3.85	0.94
i	status of safety machinery (fire extinguishers, anti-panic handles)	4.16	1.07	3.97	1.56	3.83	0.97	3.88	0.98
j	level of perceived knowledge of teachers - trainers - instructors	4.18	1.07	4.49	0.86	3.94	0.92	4.37	0.88
k	willingness and courtesy of the custodial staff	3.83	1.14	4.09	1.01	3.44	1.12	3.95	0.94
l	ratio of available space / number of active users	3.87	1.12	4.20	0.96	3.38	1.16	3.92	0.97

Of the total scores achieved the best evaluations provided are related to the (1) level of perceived knowledge of teachers/trainers/educators (4.2), (2) lighting of the playing fields (4.1), and (3) level of facility's accessibility (3.9); while worst assessments are referred to (1) care and hygiene of the global spaces (3.6), (2) functionality of locker rooms (3.6), and (3) structural state of wear (3.7).

Still describing extra PESS inside SF, in the Table 5, the analysis includes 'how' the students evaluate their own structure compared to the other in which they play (e.g., matches or competitions outside the usual environment). Almost one-third of the sample (31.7%) assess their SF as "globally similar" with the others, 33.3% "superior", and 18.9% "inferior".

Table 5 Own SF, for Extra PESS Activities, Compared with Others Foreign SF Utilized

	LG (%)	UG (%)	Total (%)
globally similar	24.00	38.06	31.72
slightly superior	25.09	18.51	21.48
slightly inferior	12.73	15.67	14.34
showily superior	14.55	9.55	11.80
showily inferior	3.09	5.82	4.59
not defined	20.55	12.39	16.07

When asked to evaluate (still 5-points Likert scale utilized) the home SF in comparison with foreign utilized SF, findings reveal how external SF appear slightly inferior compared with the familiar one: own SF evaluation LG 4.1±0.8, UG 3.9±0.8; others SF evaluation LG 3.7±1.0, UG 3.7±0.9. The general evaluations obtained are: "home" SF 4.0±0.8; and "foreign" S.F. 3.7±0.9 (total average -8%).

Another relevant part, included in the themed-questionnaire, was the one that include the reasons why was impossible to utilize SF and perform PA (Table 6) and the injuries related to the facility structure.

Although half sample (50.5%) admit that always perfectly use SF, the mayor reason of failure is related to water causes that notch/damage the facility (12.2%). Regarding the injuries related to SF, two-thirds of the studied sample (66.1%) admits have never suffered any, 18.7% once, and 9.0% several times.

Table 6 Reasons of Inability to Carry Out Extra PESS Activities

	%
no, never	50.48
yes, due to temperature factors	5.19
yes, for insufficient number of users	5.49
yes, for no-attendace of trainers - educators - professors/teachers	7.93
yes, due to rupture/manumission/absence/theft of fixed and mobile material	3.11
yes, due to water causes that notch/damage the facility	12.23
other reasons	15.57

The latest questions investigate the knowledge provided, in the sports field, on safety regulations related to SF, and in which quantity the global "status" of the same (supplied qualities) could be defined as relevant factor in obtaining personal PA objectives during developmental age (Table 7).

More than a third of the students (37.5%) admit that have never received any kind of training related to safety acts in SF, 22.8% only once in all the scholar years until the questionnaire was dosed, and almost for students out

of ten (39.7%) affirm that receive actualized safety information every year. More than for students out of ten (41.4%), between eleven and nineteen years old, voted the quality of the SF as "essential" (10.7%), or "important" (30.7%) to reach the personal PA aims, 39.6% "sufficiently", 14.2% "few", and 3.2% "none".

Table 7 Students Personal Aims and Importance of SF Supplied Qualities

School Grade	Students Opinion (%)				
	None	Few	Sufficiently	Very Important	Essential
LG	6.20	15.42	43.52	23.92	10.95
UG	0.72	12.87	39.57	36.35	10.49
Total	3.20	14.02	39.57	30.72	10.70

4. Discussion and Conclusions

This work contributes in defining "how" SF are seen, assessed, and used by all the developmental age population studied both in PESS environment and extra PESS activities. The present research could also assist researchers alike to familiarize themselves with the extent of the work published in this specific field of education related to the sports science.

An important finding observed, is how almost eight students out of ten (79.1%), of the evaluated cohort, perfectly represent an agreement with the latest official European trends provided (Eurobarometer, 2014). The most SF used, between 11 and 19 years old are outdoor fields, fitness & health gyms, and sport halls. This represent, again, an international trend where the utilization of the "classic" facilities (fields and halls) for individual or groups sport disciplines, are invaded by the more fashionable activities that could be performed inside gyms, or related focused studios, that call a lot the attention of the teenagers who want to keep active without desert PA. Still describing the gym active "population", has been revealed only a difference of 3.4% between what emerged (25.4%) and what described in the continental surveys (22%); this could be explained enhancing the age of the sample studied because was four years younger (11–14 yy), in the lower limit of comparison, with the provided one (15–24 yy) which exceeds the upper limit of five years.

For what concern outdoor SF (fields, courts, and tracks) the evaluated sample obtain 36.9% compared with the relevant 87% sampled by Sallis et al. (2001); whereas findings for indoor SF (halls, tracks) reveal a higher 25.6% against a 13% by the same authors. These differences could be represented by the environment in which the survey is carried out, because it is supposed that in every country, or continent, sports culture and tradition directly affect the decisions of people, during developmental stages, in select and subscribe a discipline to the detriment of others.

In relation to SF, the subdivision offered by Bocarro et al. (2012), has been optimized by grouping the same depending on the environment variables of the structure, obviously related depending of the type of PA that could have been carried out inside any facility grouping.

Is undoubted that the mean values obtained in relation to the SF, both for PESS activities and extra PESS, gain more than acceptable results with 3.7/5 for PESS activities and 4.0/5 for extra PESS activities. This could represent a relevant starting point in knowing "how" SF are perceived and assessed during developmental age, but, nevertheless, SF could run the real risk of becoming too outdated without good maintenance local plans and focused investments in a short-medium term.

Additionally, it has been important to detect how almost four students out of ten (39.7%) annually receive specific training related to safety acts in SF, but as well worrying that the remaining 60.3% received only once these kind of emergency instructions or, even worse, never in a life.

The SF qualities, daily delivered to the population of teens, are labelled as essential or important in the 41.4% of the analyzed students, in obtaining personal PA objectives and sports related goals.

Nonetheless, the investigation had some limitation: firstly, related to the validation of the utilized tool which has resulted sophisticated due to the specific items needed; and, in second instance, the sampled population interviewed doesn't represent the whole Italian nation, but rather the northern geographic area. For this reason, probably, the selected cohort excluded any different local or national trend.

Further investigation should consider these recommendations listed, aimed in creating a complete tool that could fully describe the SF utilized during the developmental age, both for PESS activities and extra PESS and leisure sports discipline performed by the same analyzed population.

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