Preliminary analysis of the (process and product) quality of physical education in Flemish secondary schools: Implementation of IKLO

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Abstract: The purpose of the present study was twofold, namely implementing a multifunctional (self-) evaluation instrument for physical education in a sample of Flemish secondary schools (*N=100*), while simultaneously obtaining a preliminary picture of the subjects' product and process quality. Descriptive statistics revealed that P. E. teachers' engagement with regard to the provision of quality school physical education is in essence restricted to initiatives and agreements that directly influence the personal class room setting, while general quality management principles and/or initiatives (e.g., strategic planning), aimed at assuring and/or improving the subjects' overall professionalism, status and/or situation, are at present in many schools underdeveloped. From the perspective of introducing general quality management principles in school physical education, a large majority of participating P. E. teachers exhibit great interest in and appreciation for the IKLO-instrument. When applied correctly, this instrument is considered to be a valuable asset for the future of school physical education.

Key words: school physical education; quality assessment; self-evaluation

1. Introduction

1.1 The situational context of school physical education

Over the past decade, the interest in the quality of school physical education has increased, following an extensive amount of scientific research on the possible benefits (Dale & Corbin, 2000; Emmanouel, Zervas & Vagenas, 1992; Le Masurier & Corbin, 2006) and the discrepant day-to-day reality of the subject (Hardman & Marshall, 2000; Laws, 2002, 2003; Pühse & Gerber, 2005). On a political level, this resulted in a plethora of national and international declarations, recommendations and guidelines aimed at improving the access to, and the provision of, quality school physical education (CDC, 1997; EUPEA, 2002; NASPE, 2004). Next to this, different researchers have started to investigate the quality of school physical education (Brettschneider, et al., 2006; Egger, 2001; Stegeman, 2007). In general, the messages emerging from these studies endorse the viewpoint of Hardman

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(2002, 2005), namely that despite the various legislative efforts, school physical education is still facing some substantial deficiencies (e.g., unavailability and/or inaccessibility of adequate sport accommodation, discord between official and actual curricular time allocation) and challenges (e.g., implementation of a course-specific quality assurance system) that need to be addressed in order to maintain and/or upgrade the subjects' educational quality.

A similar discrepancy between policy rhetoric and actual practice appears to exist in Flanders, the northern Dutch speaking part of Belgium. Although school physical education is a compulsory course in this country, with clearly defined attainment levels and an official school inspectorate, the actual quality of the subject remains debatable. In fact, research of De Knop, Theeboom, Huts, Van Hoecke and De Martelaer, (2004); Huts, De Knop and Theeboom (2005) and Huts, De Knop, Theeboom and Van Hoecke (2007), point out that pupils, P. E. teachers as well as representatives from different social, educational, and workforce agencies have the opinion that the official attainment levels are too seldom being achieved. According to these respondents, the most important reasons for not attaining the predetermined levels are generally process and/or input related. This means that actual quality is mainly determined by factors related to the educational system and processes (e.g., lack of curricular time allocation, low subject status, teaching of too large classes).

Next to this, an increased general interest in the functioning and actual realized quality of education (Devos, et al., 2000; Hendriks, 2001), the growing quality awareness of parents and pupils (Hendriks, 2001; Vertommen, 2000), the need to rationalize or respond more efficiently to the ever changing expectations of contemporary society (Cremers-Van Wees, Rekveld, Brandsma & Bosker, 1996; Vanwing, 2000), the pursuit of lower educational costs (Smolders & Jegers, 1994), and the deregulation of the educational scenery (Liket, 1992; Olthof, 1993; Vanhoof & Van Petegem, 2006) have, among others, pressured the Flemish educational government to change to a pedagogic-didactical approach for assuring educational quality (Devos, et al., 2000; Peeters, 2002; Standaert, 2001). An important characteristic of this reform is a shift in the locus of control from government towards school level. As a consequence, Flemish schools have become more autonomous but also more accountable for the quality and performance (effectiveness) of the education provided (De Medts, 2006). To come to terms with this increased responsibility and independence, schools have to develop and systematically implement an internal quality assurance policy, attuned to the principles of contemporary performance and quality management. In order to help schools with this task, different research projects, with regard to the identification and/or listing of critical success factors, have been generated and many types of school self-evaluation instruments have been developed to analyze different elements of the educational setting (e.g., staff, physical setting, organization and controlling of processes) (Cremers-van Wees, et al., 1996; Deckers & Jacobs, 1994; Devos, et al., 2000; Gallegos, 1994; Hendriks, 2001, 2003; Voogt, 1995).

In line with the former initiatives and conform with the total quality definition of Dahlgaard, Kristensen and Kanji (1995) (i.e., continuous improvement in which everyone actively participates), Van Cauwenberghe (2003) and Van Cauwenberghe, Vergauwen and Behets (2003, 2004) stressed that the school physical education department and the individual P. E. teacher also play an important role in assuring educational quality, and more specifically school physical education quality. To achieve this, it would be helpful to provide these P. E. teachers with a guiding tool that makes them aware of quality (assurance) management and convinces them to install a well-organized and successful subject. However, contrary to the multitude of evaluation instruments for schools (Berckmoes, 2007; Durieux & Ongenaert, 2005; Van Petegem & Cautreels, 2003; Van Petegem & Jacobs, 2006), to date there appear to be no suitable course-specific tools that can help departments and/or teachers with the

unavoidable process of professionalization.

1.2 Purpose of the research project

Considering the foregoing argumentation, the objective of the present study was twofold. Firstly, as part of a large research project on the quality of school physical education in Flemish secondary schools (De Knop, et al., 2004; Huts, De Knop & Theeboom, 2005; Huts, et al., 2007), it aims at providing a preliminary picture of the product and process quality of physical education in a sample of Flemish secondary schools. Following the total quality framework of van Bottenburg, van't Hof and Oldenboom (1997), school physical educations' product and process quality can be considered as adequate when the course fulfils the criteria laid down by experts (product quality) and is organized effectively and efficiently (process quality).

Next to this, for reasons of supporting future quality assurance processes in school physical education, this study seeks to evaluate the functionality, applicability and user-friendliness of the utilized instrument (e.g., value, meaning, clarity). The researchers opted to develop a multifunctional instrument that could not only be applied for collecting relevant research data, but that could also be used in actual day-to-day practice. For instance, at school level, the instrument should provide an overview of the quality determining factors (i.e., critical success factors with regard to the educational system and process) and be available as a frame of reference for conducting course-specific self-evaluations in school physical education. In this context, it should clearly discern the strengths as well as the shortcomings in achieving well-functioning processes and facilitate a structured remediation in order to optimize the overall effectiveness and efficiency of the course. Next to this, while considering the sometimes problematic status of the subject (De Knop, Theeboom, Huts, De Martelaer & Cloes, 2005; Hardman & Marshall, 2000; Zeigler, 1999), the instrument should provide P. E. departments with an extra objective argument to permanently confront others (e.g., school principals, government) with standards of quality school physical education and subsequently convince them to invest (more) in the subject. Finally, the instrument should allow the Flemish pedagogical counselling officers, to periodically measure physical educations' quality progress in schools.

2. Method

2.1 Instruments

A prototype of the course-specific (self-) evaluation instrument IKLO (i.e., Instrument for quality analysis of school physical education) and a written questionnaire (see Appendix) were applied to respectively gather data on the process/product quality of school physical education and on the functionality/applicability of the IKLO-instrument. As illustrated in Figure 1, the development of the IKLO-instrument is carried out in four consecutive phases corresponding to the experimental design of Van Hoecke (2000). In this context, the present study is part of the evaluation phase (i.e., on field testing/assessment).

Phase I: Selection of a conceptual model. The IKLO-instrument is based upon a conceptual model for quality and performance management in sports clubs and more particularly youth academies (see Figure 2) (Van Hoecke & De Knop 2006; Van Hoecke, Schoukens & De Knop, 2006). Van Hoecke (2000) reviewed and logically integrated various evaluation approaches (Steinmetz, 1983; Zeithaml, Parasuraman & Berry, 1993), theoretical concepts (Buswell, 1998; De Meulemeester & Callewier, 1997; Lovelock, Vandermerwe & Lewis, 1999; van Bottenburg, van't Hof & Oldenboom, 1997) and practical models (e.g., EFQM, CIPO, McKinsey 7S-model) in order to present a conceptual framework for the structured analysis of service systems and processes.

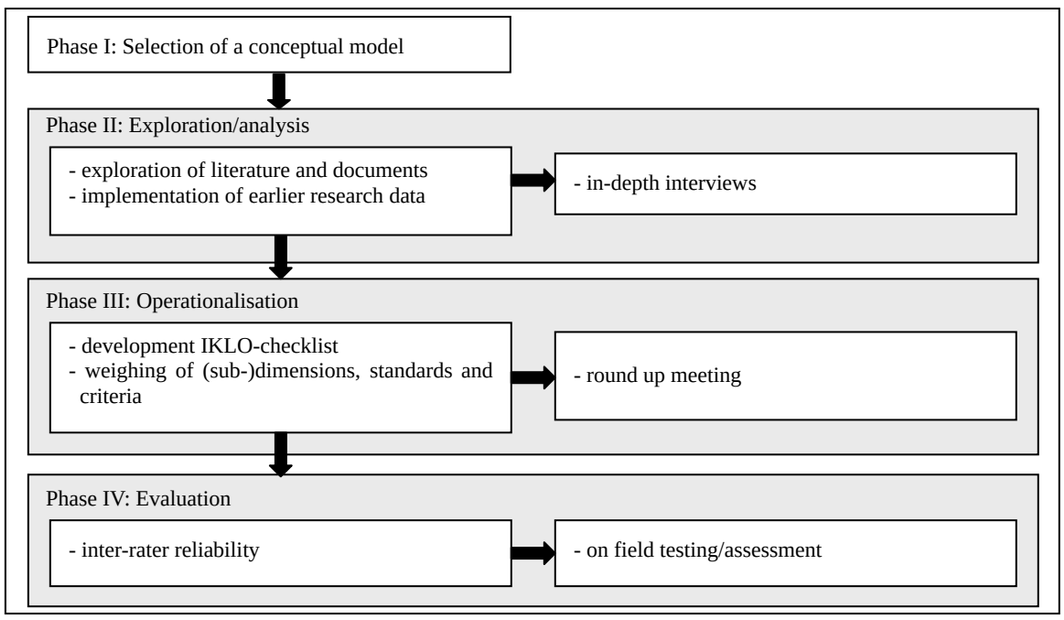

Figure 1 Experimental design for the development of IKLO based on Van Hoecke (2000)

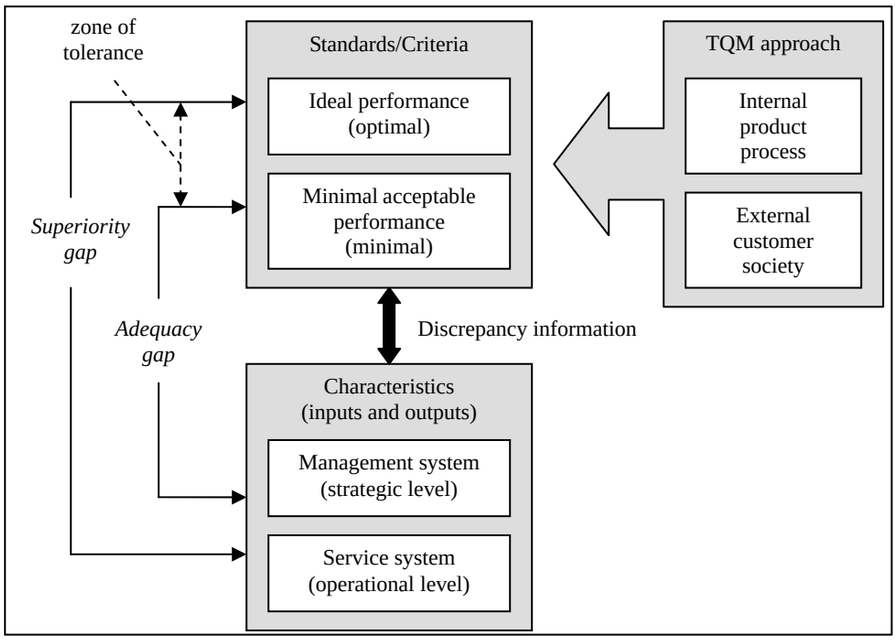

Figure 2 The conceptual model for quality analysis of Van Hoecke (2000)

The selected framework is based upon the (open) system and the evaluation-by-standards approach. As illustrated in Figure 2, it departs from the idea that all service delivery systems are dependent on input variables for generating processes that will ultimately result in actual output (i.e., system approach). It also suggests that evaluations should be based on a comparison between actual performance characteristics and predetermined minimal/optimal standards (i.e., discrepancy evaluation model). These standards/criteria should ultimately be

determined after considering different quality approaches and involving various stakeholders (i.e., multi-perspective approach), while judgments about actual performance should arise from the assessment of objective strategic and operational input variables (i.e., personnel, facilities, service design).

Phase II: Exploration and/or analysis of relevant course-specific quality dimensions, standards and criteria. The selection of objective course-specific (sub-) dimensions, standards and criteria for the IKLO-instrument was carried out in different stages. A first draft of relevant quality dimensions, sub-dimensions, standards and criteria was obtained from earlier research findings (De Knop, et al., 2004; Huts, De Knop & Theeboom, 2005; Huts, et al., 2007; Van Hoecke, Schoukens & De Knop, 2006) together with an extensive literature and document review (e.g., evaluation frameworks, practical guidelines, official documents). Next, to further assure the content and context validity of the instrument, all the gathered (sub)dimensions, standards and criteria were delivered to experts (N=50) with a close and detailed knowledge of the inner workings of schools and/or the school physical education subject (i.e., product quality) (see Table 1). This is consistent with Chelladurai and CHANG (2000) who argued that, as external consumers (e.g., society, pupils) may lack the knowledge and/or expertise to fully understand the functioning, technical aspects and/or problems of a human service (e.g., school physical education), standards should primarily be conform to professional specifications. The experts were asked to carefully analyze the (sub)dimensions, standards and criteria, bearing in mind three questions: (1) Which are according to you important dimensions of quality school physical education? (2) Which are according to you important sub-dimensions, standards and criteria for quality school physical education? and (3) Can you make a distinction between minimal and/or optimal standards/criteria?

Table 1 Demographic characteristics of the interviewees

	P. E. teachers (n = 20)		Pedagogical counseling officers (n = 13)		School inspectors (n = 2)		School principals (n = 5)		Experts (n = 10)	
Gender										
Female	10		6		1		3		7	
Male	10		7		1		2		3	
	Age	Exp.	Age	Exp.	Age	Exp.	Age	Exp.	Age	Exp.
Mean	49.47	26.12	52.73	26.50	53.50	24.50	52.33	23.33	61.00	25.00
STD	6.330	6.547	6.451	7.091	2.121	4.950	2.082	4.726	6.325	16.971
Max.	59	33	67	14	55	28	54	27	69	37
Min.	33	8	45	41	52	21	50	18	55	13

During subsequent in-depth interviews, the researchers ascertained which (sub-) dimensions, standards and criteria should be further adjusted (i.e., added, removed, combined and/or reformulated). The constant comparing and contrasting of these qualitative data (Lincoln & Guba, 1985) resulted in a total of 232 objectives, course-specific quality standards/criteria, related to 20 sub-dimensions and divided over six general dimensions, namely:

(1) Organizational structure (10 indicators): analysis of organisational charts, departmental task descriptions and P. E. teachers' commitment to attend consultative structures (e.g., advisory committee) and/or perform school organizational tasks (e.g., class teacher) in order to detect if the school physical education department and its members are firmly established in the school structure;

(2) Strategic planning (33 indicators): analysis of strategic documents such as school mission, departmental vision, SWOT-analysis, long and short term objectives and financial planning;

(3) Facilities and equipment (81 indicators): analysis of general (e.g., availability, accessibility) and rational (e.g., neatness, safety) management procedures, assessment of in- and outdoor facilities and equipment;

(4) Physical education as core product (51 indicators): analysis of the course-specific vision (e.g., content, methods, pupil evaluation), didactical documents (e.g., year plan, accommodation plan), possibilities for extra-curricular physical activity;

(5) Internal and external communication (26 indicators): analysis of teacher/pupil feedback procedures, course-specific code of conduct, school magazine, info brochures, school website, collaboration plans with other schools, sport organisations and/or local authority;

(6) Human resources management (31 indicators): analysis of P. E. teachers' job descriptions, recruitment selection processes, evaluation and performance interviews, attendance of internal and external refresher courses, compensations and benefits.

These dimensions largely correspond to the PASS model of Van Hoecke, et al (2006) for the evaluation of youth academies in (professional) sports clubs.

Phase III: Operationalization of the instrument. Each quality dimension (incl. appropriate sub-dimensions, standards and criteria) was then organized in a separate computerized checklist. Furthermore, referring to Van Hoecke (2000), Van Hoecke and De Knop (2006), to make a clearer distinction between minima and optima, a logical weighing between the different quality dimensions, sub-dimensions, standards and criteria was proposed by the researchers. By conclusion, this version of the IKLO-instrument including the proposed weighing was revised by two representatives from each of the earlier mentioned expert groups (e.g., P. E. teachers, inspectors) (N=10), and discussed in a round-up meeting, until consensus about the proposed evaluation instrument (i.e., content and weightings) was reached. Consequently, a maximum of 2000 points, divided over the different dimensions (i.e., "organizational structure": 250 points; "strategic planning": 300 points; "facilities and equipment": 300 points; "P. E. as core product": 700 points; "internal and external communication": 250 points and "human resources management": 200 points) can be obtained in the IKLO-instrument.

Phase IV: Evaluation of the instrument. Finally, the inter-rater reliability of the IKLO-instrument was tested in fifteen secondary schools using a parallel scoring method (i.e., two P. E. teachers originating from the same school independently completed the IKLO-instrument). Inter-rater correlations were figured out and a high reliability (r≥0.9*)* coefficient and significant correlation (Kappa) (p<0.001) were obtained for all criteria.

2.2 Data collection

A standardized procedure was followed to collect data in a sample of Flemish secondary schools (N=100). These schools were recruited at random and stratified by educational network (e.g., catholic or community school) and number of pupils (i.e., n≤300, 300<n≤550 or 550<n). First permission to conduct the study was gained from the school principal and the P. E. teacher. Next, a researcher visited the school and completed the different IKLO-checklists based upon document analysis, school observations (e.g., available material) and a meeting with the P. E. teacher(s). This procedure was opted in order to increase the objectivity of the process/product quality analysis.

Afterwards, a questionnaire for the functional evaluation of IKLO (see Appendix) was administered. The latter questionnaire could be filled in at the P.E. teachers' convenience and returned to the researchers later (degree of response: 82.0%).

2.3 Data analysis

The IKLO-data were analyzed descriptively by means of the Statistical Package for the Social Sciences

(SPPS 15.0). Frequency and percentage were calculated per indicator, while mean, median, minimum and maximum scores were figured out per quality (sub)dimension. Subsequently, two-tailed Kruskal-Wallis and Mann-Whitney analysis with Bonferroni adjustments were computed to estimate differences between school size, school location and educational network (Field, 2006). In this context, the alpha level for significance was set at 5%.

To analyze the data obtained with the IKLO-assessment questionnaire, descriptive statistics (i.e., frequency, percentage) were generated for the closed-ended questions, while inductive procedures were opted to classify the open-ended answers into interpretable and meaningful key themes and categories (Glaser & Straus, 1967).

3. Results

As reported in Table 2, the mean scores of the school audits suggest that the process and product quality of physical education in Flemish secondary schools can be considered as adequate. However, of all the participating schools, 66.0% fails on one (27.0%), two (18.0%) or even more (21.0%) quality dimensions.

Table 2 Descriptive statistics with regard to the scores on the 6 dimensions of IKLO

N = 100	ORG	STR	FAC	PEC	COM	HRM
Mean (%)	66.9	52.9	83.8	76.5	65.6	55.3
STD	23.3	22.7	12.8	18.6	15.7	21.6
Maximum (%)	100	98.4	99.9	100	100	97.9
Minimum (%)	4.5	4.0	41.1	16.3	22.6	11.2
Median (%)	65.3	51.5	88.1	82.6	67.1	52.2
Score<60.0% (%)	43.0	58.0	8.0	16.0	33.0	58.0
Score<50.0% (%)	22.0	49.0	1.0	10.0	17.0	48.0

Notes: ORG (organizational structure), STR (strategic planning), FAC (facilities and equipment), PEC (physical education as a core product), COM (internal and external communication) and HRM (human resources management).

Generally, the lowest scores are encountered on the dimensions “strategic planning” (52.9%) and “human resources management” (55.3%). In fact, almost half of the research sample does not obtain a score above 50.0% for either of these dimensions. The low scores on “strategic planning” are mainly due to the lack of a formal departmental vision, the inexistence of long or short term goals, and the absence of a long and/or short term estimation of course-specific costs. With regard to “human resources management”, the gathered data identify the lack of formal job descriptions, the internal evaluation of P. E. teachers (e.g., frequency and/or nature) and the absence of regular departmental meetings as most common weaknesses. On the contract, the continued education of P. E. teachers is uncovered as an important strength of this dimension. For instance, in 91.0% of the participating schools information about refresher courses is carefully distributed to the P. E. teachers, and in 81.0% of the schools all P. E. teachers follow at least one external refresher course a year. In this context however, it is worth noting that external refresher courses are in more than half of the schools not attended in function of departmental or school needs, nor is information obtained during these courses automatically distributed among colleagues.

The highest mean scores are registered on the dimensions “facilities and equipment” (83.8%) and “P. E. as core product” (76.5%). Within “facilities and equipment” high mean scores are attributed to all four sub-dimensions: general and rational facility management (81.5%), outdoor accommodation (94.6%), indoor accommodation (82.3%) and sports equipment (82.3%). A more detailed analysis of these sub-dimensions (i.e.,

frequencies of standards/criteria) reveals some general positive trends, such as (1) lessons that are seldom cancelled because of unavailable facilities (i.e., cancellation of lessons was lower than 2 hours/class/year), (2) lessons that, if desired, can always be taught indoor, (3) hygienic facilities that are accessible in less than five minutes and (4) adequate safety policies. Next to this, 91.0% of the research sample indicates that they have an outdoor accommodation with minimal sporting equipment at their disposal. However, the quality of the outdoor accommodation is considered insufficient in 31.0% of the participating schools (e.g., rough surface). On the contrary, most standards/criteria of the sub-dimensions indoor accommodation (e.g., dressing rooms, equipment store room) and sports equipment are achieved in over 70.0% of the visited schools. "P. E. as a core product" also scores high because in most of the participating schools: (1) there are some agreements with regard to lesson content (e.g., vertical and horizontal coherence), teaching methods and evaluation procedures, (2) the necessary didactical documents are up to standards (e.g., year plan, accommodation plan), (3) all official documents (e.g., final attainment levels, teaching curriculum) are available, and (4) possibilities for competitive and/or recreational extra-curricular physical activities are provided.

To conclude, moderate mean scores are found on the dimensions "organizational structure" (66.9%) and "internal and external communication" (65.6%). Reoccurring characteristics within the dimension "organizational structure" are, among others, the lack of a formal departmental task description, the absence of a departmental organization chart and/or P. E. teachers that perform school organizational tasks (e.g., class teacher), but who are seldom member of a school consultative structure (e.g., advisory committee). Next to this, the moderate score on "internal and external communication" is generally due to a high score on internal communication (76.4%) (e.g., teacher/pupil feedback, course specific code of conduct) and lower scores on, respectively, external communication (55.3%) (e.g., presence of P. E. on open school days, on the school website or in the schools' info brochure) and collaboration with other organizations (54.5%) (e.g., sport organizations, other schools).

Kruskal-Wallis analysis suggests that four quality dimensions are affected by school size (see Table 3). Mann-Whitney tests were computed to follow up this finding. A Bonferroni correction was applied and so all differences were reported at a=0.025 level of significance. It appeared that large schools (n>550) scored significantly higher than small (n≤300) schools for the dimensions "organizational structure" (U_{ORG} =337.0, p=0.022, r=-0.28), "strategic planning" (U_{STR} =334.5, p=0.021, r=-0.29), "P. E. as a core product" (U_{PEC} =303.0, p=0.006, r=-0.34) and "internal and external communication" (U_{COM} =329.0, p=0.017, r=-0.3). Large schools also scored higher than middle-sized schools (550<n) for the dimensions "internal and external communication" (U_{COM} =477.0, p=0.015, r=-0.28), and "human resources management" (U_{HRM} =468.0, p=0.02, r=-0.27).

Table 3 Descriptive statistics and Kruskal-Wallis calculations for school size

School size	ORG	STR	FAC	PEC	COM	HRM
Mean (%)						
n≤300	58.3	46.3	84.2	68.9	61.1	50.4
300<n≤550	65.3	49.6	81.6	74.5	62.8	51.5
550<n	74.1	60.1	85.6	83.4	71.2	61.9
Score<50.0% (%)						
n≤300	34.6	57.7	0	14.2	26.9	57.7
300<n≤550	22.9	54.3	2.9	11.4	22.9	57.1
550<n	12.8	38.5	0	2.6	5.1	33.3
Kruskal-Wallis H(2)	5.87	6.94	4.61	8.79	8.21	6.18
p	0.053	0.031*	0.135	0.012*	0.016*	0.046*

Note: *p < 0.05.

Finally, as illustrated in Table 4, Mann-Whitney analysis also revealed that, at a=0.05 level of significance, catholic schools scored higher than community schools on the dimensions of "organizational structure" (U_{ORG}=885.5, p=0.02, r=-0.11), "P. E. as a core product" (U_{PEC}=870.5, p=0.015, r=-0.24), "internal and external communication" (U_{COM}=868.5, p=0.015, r=-0.24), and "human resources management" (U_{HRM}=853.5, p=0.011, r=-0.26).

Table 4 Descriptive statistics and Mann-Whitney calculations for educational network

Educational Network	ORG	STR	FAC	PEC	COM	HRM
Mean (%)						
Catholic	73.3	56.2	86.9	81.8	70.1	61.9
Community	62.2	50.5	81.6	72.7	62.3	50.5
Score<50.0% (%)						
Catholic	9.5	45.2	0	4.8	9.5	33.3
Community	31.0	51.7	1.7	13.8	22.4	58.6
Mann-Whitney U	885.5	1037.5	957.0	870.5	868.5	853.5
p	0.02*	0.2	0.68	0.015*	0.015*	0.011*
r	-0.23	-0.13	-0.18	-0.24	-0.24	-0.25

Note: * $p < 0.05$.

In general, the IKLO-instrument was labelled as a potential (46.3%) or certain (48.8%) asset for the future of school physical education because it can (26.8%) or will (63.4%) help improve the subjects' quality. However, the respondents acknowledge that the actual benefits to be derived from IKLO are strongly dependent on the P. E. teachers' motivation and discipline, the P. E. departments' willingness to consider the instrument, and the school principals' sense of responsibility.

As illustrated in Table 5, a large majority of respondents consider IKLO to be a user-friendly, understandable and valid evaluation instrument. Besides these characteristics, the instrument is valued for its objectiveness, survey ability, clearness and completeness, which according to the respondents, makes it a stimulating and solid instrument for course-specific self-reflections. The immediate availability of the results (i.e., scores and charts) and the incorporation of a weighing, in order to facilitate a more structured remediation, are mentioned as additional strong points. Moreover, the respondents emphasize that the IKLO-results are to a large extent (76.8%) or completely (18.3%) in line with their expectations.

Table 5 General evaluation of the IKLO-instrument (N=82)

Score (%)	User-friendly	Understandable	Content validity	Clear results
Very unsatisfactory	0	0	0	0
Unsatisfactory	1.2	6.1	17.1	2.4
Satisfactory	62.2	75.6	74.4	72.0
Very satisfactory	36.6	18.3	8.5	25.6

Notwithstanding, the overall positive evaluation of IKLO, 17.0% of the respondents (see Table 5) appear to question the instruments' content validity. This minority stresses that some standards/indicators are too school oriented (e.g., school mission) and/or not understandable (e.g., subject vision) without an additional clarification. They also indicate that the IKLO-instrument might provide a distorted picture because it exclusively scores tangible, objective measurable indicators (e.g., documents) and does not consider the many oral or informal agreements that are being made in practice (i.e., too bureaucratic). According to these respondents, the presence of documents is no guarantee for actual subject quality and is even unnecessary for some—mostly smaller—P. E.

departments. Other cited weaknesses of the IKLO-instrument are: (1) the inability to measure (intrinsic) teacher motivation, (2) the absence of a practical, output-oriented dimension (e.g., realization of the attainment levels, class observations), (3) the fact that only the availability and not the quality of the sport material can be scored, (4) the inability to evaluate different sporting facilities, and (5) the fact that results are presented in scores and not percentages.

5. Discussion and conclusion

It was the aim of this study to gain a preliminary insight into the product and process quality of physical education in a sample of Flemish secondary schools. With mean scores above 50.0% for all quality dimensions, the present research data suggest that physical educations' process and product quality can be considered as adequate in the participating schools. However, this finding should be treated with caution as it might provide a distorted global picture of the actual day-to-day reality. In fact, scores and number of fails (i.e., scores<50.0%) varied considerably from one evaluated school to another. Next to this, although at random selected by educational network and number of pupils, all schools in the research sample participated voluntarily. Assuming that these schools were already more convinced about the quality of their physical education course, caution is required with generalizations that should be made towards the total Flemish secondary school population. In fact, the latter circumstance suggests that a representative score for the total population might actually be lower.

Notwithstanding its limitations, the present study does shed a light on some possible quality tendencies in school physical education. On an individual level, it reveals that many of the participating P. E. teachers regularly attend external refresher courses, pay attention to internal communication (i.e., feedback towards pupils) and apply official policy documents (e.g., final attainment levels) to develop appropriate year plans. On a departmental level, the gathered data show that the participating P. E. teachers organize extra-curricular physical activities and work together with colleagues to draw up accommodation plans and/or make formal agreements regarding items that directly affect actual practice (e.g., coherence between subject contents, teaching methods and/or pupil evaluations). On the contrary, these P. E. teachers rarely distribute professional information among colleagues (e.g., after attending a refresher course) and/or attend a refresher course to meet departmental or school needs. These findings also reveal that most of the visited P. E. departments formally meet only once a trimester and seldom dispose of documents that underpin their professionalism and/or long term thinking (e.g., course-specific vision, self-evaluation report, long/short term goals, estimation of course-specific costs, departmental organization chart). On a school level, a mission statement that emphasizes physical activity and/or physical development, an official document that describes the tasks and/or responsibilities of the (P. E.) department and/or individual job descriptions per (P. E.) teacher are practically non-existent. On the contrary, the participating schools often obtain a high score on "facilities and equipment". However, this result should be put into perspective as in the applied draft of IKLO: (1) facilities and accommodation are to a large extent evaluated against minimum standards, (2) material could merely be scored on availability and not on quality, and (3) there was no possibility to score different indoor accommodations. Consequently, it is assumed that the score for "facilities and equipment" is probably an overestimation of the actual situation.

In all, the preceding enumeration of research findings suggests that P. E. teachers' engagement with regard to the provision of quality school physical education is in essence restricted to initiatives and agreements that directly influence the personal class room setting. Some of the participating P. E. teachers appear to be unfamiliar

with quality principles and/or initiatives (e.g., strategic planning) that aim to assure and/or improve physical educations' professionalism, general status and/or overall situation within the school setting. Soltani, van der Meer and Williams (2005) emphasize that this may be due to a lack of strong leadership, problems of convincing staff to take ownership of quality and/or insufficient employee engagement because of lack of knowledge and/or recognition of Total Quality Education principles. Especially, in the smaller schools (i.e., with one or two P. E. teachers) the importance and or attainability of these class exceeding initiatives appears to be questioned. On the contrary, the larger schools in the research sample already appear to acknowledge the need and/or added value of formalizing and professionalizing the school physical education subject.

Besides a preliminary insight into the process and product quality of physical education in some Flemish secondary schools, the second aim of this study was to develop and implement a multi-functional, course-specific management tool. Based upon the SWOT-analysis in Table 6, the next paragraphs will successively focus on strengths and weaknesses of IKLO and reflect on opportunities and possible threats that may influence the future implementation of this instrument.

Table 6 SWOT-analysis of the IKLO-instrument

Strengths	Weaknesses
- innovative for school physical education - course-specific - conceptual model as frame of reference - measurement of tangible/formal criteria - valid and reliable - multi-functional - user-friendly, objective, surveyable, etc. - appreciated by P.E. teachers	- limited statistical basis - no attention for intangible/informal criteria - no attention for school context - no output/performance related dimension - no guarantee for actual effectiveness/performance - no possibility to evaluate the quality of material - no possibility to evaluate different facilities

Opportunities	Threats
- applicable on different levels by different stake-holders (e.g., school principal, P. E. department) - introduce/stimulate internal quality management - systematically increase quality awareness - basis for a structured remediation (weighing) - visualization of efforts to provide quality P. E. - visualization of quality progress in P. E.	- dependence on the willingness of others - application for trans-school comparisons - reliability of self-evaluations - a high IKLO-score as an objective in itself - a high IKLO-score considered as the end-point - merely applied as a framework for pursuing a higher score on external evaluations

Important strengths of IKLO are among others: (1) the conceptual and scientific basis used to determine and structure quality determining factors, (2) the measurement of tangibles and formal documents in order to obtain an objective and reliable result, and (3) the fact that, at present, the instrument offers a unique frame of reference for conducting course-specific (self-) evaluations in school physical education. Next to this, a large majority of the participating P. E. teachers exhibit a great interest in and appreciation for this innovative instrument (e.g., user-friendliness, objectivity, validity, completeness). This is important because the actual benefits and opportunities to be derived from IKLO are strongly dependent on the attitudes of the P. E. teachers, the P. E. department and the school management. When applied correctly, IKLO can stimulate and drive internal quality improvement processes, it can help prioritize the remediation of course-specific weaknesses and ultimately may contribute to a more effective and efficient realization of the predetermined objectives (e.g., final attainment levels, school mission). Furthermore, IKLO can be applied as an objective tool to illustrate quality related efforts and/or quality progress in school physical education. In this context, the instrument will hopefully contribute to the continuous struggle for survival, confirmation, and legitimacy of school physical education, by reducing

misconceptions about the subject.

On the contrary, IKLO can also be misused, for instance, when the instrument becomes the objective instead of the tool for performing quality evaluations (i.e., shift in the evaluators' focus from diagnostic self-assessment to the collection of scores). In practice, this may lead to: (1) schools that develop formal documents but never really implement them, (2) schools that consider a maximum score as the end-point for their internal quality assurance policies, and (3) schools that merely apply the instrument to formally prepare for external evaluations in order to obtain a more positive score. Therefore, the researchers like to stress that scores should only be considered as a visualization of problematic areas and that actual prioritization among areas of improvement should always be based on the needs and interests of the school, P. E. department and/or P. E. teachers.

Finally, as illustrated in Table 6, the IKLO-instrument also has its weaknesses, as there are, the lack of a causal relationship between the IKLO-scores and the actual effectiveness/performance of the course, and the fact that possibly important intangible/informal variables are not being measured (i.e., rounding off error). However, based upon the experiences and comments gathered in this study, some adjustments have already been made in order to counter some weaknesses and further improve the applicability of IKLO. For example, in order to pay more attention to intangible and informal aspects, the scoring method was altered from a nominal (i.e., available/unavailable) to an ordinal (e.g., available in good quality/available/not available) level. By doing so, the researchers hope to obtain an even more accurate picture of the process and product quality of school physical education (i.e., mapping of oral agreements and/or quality of utilized material) and consequently provide a more realistic and encouraging end result. Additionally, to even further increase the comprehensibility, user-friendliness and validity of the instrument, clarifications with practice related examples were added to the sub-dimensions and some standards/criteria. To conclude, all final scores were recalculated to percentages instead of effective scores. A specific framework to set up a concrete action plan and a structure to separately evaluate different facilities was added. A manual with examples of good practices is currently being developed.

Future research will focus on testing the sensitivity and specificity of the IKLO-instrument, for example, by comparing IKLO-results with those of the official school inspectorate. The inter-rater reliability of the instrument will further be tested by comparing IKLO-scores obtained by internal (i.e., P. E. teacher) and external (i.e., pedagogical counselling officer) evaluators. Next to this, the fascinating relationship between the IKLO-score and the actual effectiveness/outcome of the course, as well as the possibility of yet adding a seventh performance related dimension will be investigated. Finally, after having completed the latter research topics, the IKLO-instrument will be used to obtain a picture of the quality of school physical education in a broader and representative sample of Flemish secondary schools.

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Appendix:

Questionnaire (Core section)

1. Please indicate on the scale below whether IKLO is, according to you, a user-friendly instrument?

more than adequate	adequate	inadequate	totally inadequate
○	○	○	○

2. Please indicate on the scale below whether IKLO is, according to you, an understandable instrument?

more than adequate	adequate	inadequate	totally inadequate
○	○	○	○

3. Please indicate on the scale below whether the courses' professionalism can, according to you, be adequately measured with the IKLO-instrument?

more than adequate	adequate	inadequate	totally inadequate
○	○	○	○

4. When prior answered 'inadequate' or 'totally inadequate', please note how, according to you, the content of the IKLO-instrument can be further improved?
5. Please indicate whether IKLO can, according to you be considered as a valuable instrument for the future of school physical education?

yes	maybe	no
○	○	○

6. Please indicate whether IKLO can, according to you contribute to quality improvements in school physical education?

yes	maybe	no
○	○	○

7. When prior answered 'no' or 'maybe', please note why, according to you, this is the case?
8. Which are , according to you, the strengths of the IKLO-instrument?
9. Which are, according to you, the weaknesses of the IKLO-instrument?
10. Are there, according to you, any other relevant items with regard to the IKLO-instrument that were not covered?
11. Can you judge the value of the IKLO-instrument on a score of 10?
12. Please indicate on the scale below the, according to you, clearliness of the IKLO-results?

more than adequate	adequate	inadequate	totally inadequate
○	○	○	○

13. Please indicate whether, according to you, the results obtained by the IKLO-instrument are as expected?

completely	more or less	completely not
○	○	○

14. How are, according to you, the reactions within the P. E. department, with regard to the IKLO-results?

enthusiastic	neutral	disappointed
○	○	○

15. When prior answered ‘disappointed’, please note why?
16. Have initiatives, to improve some of the uncovered constraints, been introduced since the audit?
    ○ yes, namely ……
    ○ no, because ……...
17. Please indicate whether these initiatives were, according to you, a direct result of the IKLO-audit?

yes	no	do not now
○	○	○