

# Environmental and Sustainable Development Education in Physical Education and Sport: Institutional Approach in the Republic of Congo

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## Abstract

The purpose of this study is to analyze the institutional approach to Environmental and Sustainable Development Education (ESDE) in Physical Education and Sports (PES) in the Republic of Congo. To this end, 31 officials from the General Inspectorate of Sports and Physical Education (GISPE), 20 officials from the General Inspectorate of Primary, Secondary and Literacy Education (GIPSLE), 20 heads of the General Inspectorate for Technical, Vocational Education and Training qualification (GITVETQ) responded to questionnaires focusing on: conceptualization, environmental issues and the exercise of ESDE in an educational approach, the planning of the ESDE and the application of the related texts, the integration of the ESDE in the Congolese education system. The results obtained showed that the integration of ESDE in PES, the environmental assurance of the sustainability of the Physical and Sports Activities (PSA), and the constitution environment of Sustainable Development (SD) in response to current needs without compromising the capacities of future generations are mentioned more by the heads of GISPE, and General Directorate of Physical Education and School and University Sport (GDPESUS). Whereas the challenges of ESDE, the strategy of raising awareness of good respectful practices of environment, and the need for training in SD were more perceived by managers of (GIPSLE). Raising awareness on the exploitation of natural resources and the exercise of the approach of the ESDE, the concomitance of the amplification of the ESDE dynamic, the obligation of the training of eco-citizens, the educational intervention according to the ecological approach constitute a major concern for those responsible for the GITVETQ. These results showed a disparate institutional approach to ESDE in the Republic of Congo.

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## Keywords

PE, Environmental Education and Sustainable Development, Institutional Approach, Republic of Congo

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## 1. Introduction

Physical and Sports Education (PSE) makes an effective contribution to teaching, education, and learning, and even better to the training of the “citizen child”, the future patriot. According to [Ewamela et al. \(2013: p. 72\)](#), school sports have become a social reality, and this can be seen in children’s initiation to sports games in the pre-pubertal period and in the continuation of this activity through to chronological maturity and youth by continuing to learn. [Amade-Escot \(2004\)](#) noted that ‘this practice contributes to the training of citizens, which is the challenge of PSE is a discipline that is more educational than instructive’.

In this context, the environmental objectives of PSE are both topical and absolutely necessary for humanity. Indeed, ‘the whole of humanity is currently committed to focusing all its energies and efforts on environmental education’ ([United Nations Educational, Scientific and Cultural Organization \(UNESCO\), 2015: p. 5](#); [International Olympic Committee \(IOC\), 2005: p. 6](#)). This commitment is marked by a combination of efforts to achieve economic, social, and cultural development. It should be noted that many developing countries are now advocating environmental protection and regional planning and are adopting sustainable development strategies. It was in December 2009 that the Congolese government set up an institutional framework to establish sustainable development ([Decree n° 2009-415 of 20 September 2009 establishing the scope, content, and procedures for environmental and social impact studies and notices in the Republic of Congo, 2009](#)).

ESDE focuses on environmental issues and involves raising awareness among the Congolese nation as a whole of the impact of human activities on natural resources. This means that ESD needs to be programmed and integrated into the curricula of all teaching subjects, including PSHE.

In fact, the ESDE can be an interesting, even essential, tool for helping to achieve the objectives of the ESDE. This integration of ESDE must be initiated by the noosphere before it is applied by pupils accompanied by teachers. It is with this in mind that we are going to conduct research on “Education for the Environment and Sustainable Development in PE in CONGO: Institutional Approach and Prospects for Integration into Curricula”.

### Aim of the research

The aim of this study is to gather the opinions of institutional leaders on the conceptualization, environmental issues, and practice of ESDE in an educational approach.

## 2. Theoretical framework

This study is part of the ecological approach to motor learning. “The ecological approach is a theory of perception-action” (Cornus & Marsault, 2003: p. 13). These authors added that it is about optimising the perceptual process and that learning is a state of attentional education. According to this approach, the subject perceives what the environment allows them to do, taking into account their own physical and motor capacities, depending on their age, size, and level of expertise during the learning process. Fadi and Reynaud (2014: p. 13) have pointed out that “learning requires intellectual and affective freedom to better understand the subject-learner interacting with the complex environment while at the same time distinguishing himself from it”. However, “this interaction between these three constraints is governed by a perception-movement coupling” (Newell & McDonald, 1995: p. 515). As a result, the optimal gesture only exists in relation to the subject, with its energetic and environmental motor capacities.

## 3. Problematic

The major international institutions promoting ESDE have most often asked the school to collaborate with partners and associations to meet the environmental challenges that threaten the well-being of Man, and indeed his entire existence and that of other species on earth. Raising awareness of natural imbalances requires communication, information, and education for the younger generation. As a result, at the dawn of the 21st century, a number of countries around the world have resolved to reform schools to integrate teaching/learning about the environment and sustainable development into their school practices. UNESCO (2015: p. 5), in its new Charter for Education Physique in article 5, “recommended that all stakeholders in education, in general, ensure the economic, social and environmental sustainability of their activities”. Specifically, it stated that:

- When planning, carrying out, and evaluating activities, providers of physical education, physical activity, and sport, as well as organisers of sporting events, must take into consideration the fundamental principle of sustainability in economic, social, environmental, and sporting terms (art. 5, para. 1); since the growing consumption of sports goods can have a positive impact on the global economy, the industry must assume its responsibility to develop and integrate socially responsible and environmentally friendly practices (art. 5, para. 2).
- It is important to prevent any negative impact of indoor and outdoor activities on the environment. Owners of sports facilities must avoid negligent behaviour that endangers spectators or degrades the environment through noise pollution, waste production, the use of chemicals, and other forms of aggression against nature (art. 5, para. 3); All parties involved in the staging of major sports events—organisers, public authorities, sports organisations, commercial partners and the media—must ensure that they have lasting benefits for the host communities in terms of financial costs, environmental impact, societal consequences, subsequent use of facilities and effects on participation in

sport and physical activity (art. 5, para. 4). This is part of the interdisciplinary and competency-based approach (CBA) with cross-curricular competencies.

However, in the Republic of Congo, the fragmentation of the Ministry of National Education has led to different educational actions. For example, the curricular content developed according to the pedagogy by objectives (PO) approach provides for the development of facilities without taking environmental aspects into account in primary and secondary school. The attempt to introduce CBA in Technical and Vocational Education and Skills Training—ESDE has been slowed down by CBA, which constitutes an innovation in terms of its emerging purpose, planning, and implementation in the Congolese education system. This is a fundamental concern and gives rise to the following research question.

### **Research question**

Is there a standardised institutional approach to environmental education and sustainable development in PES among the stakeholders in the Congolese education system?

### **Hypothesis**

The institutional approach of the various stakeholders in the Congolese education system to ESD in PES is disparate.

In order to verify this hypothesis, the following section is devoted to the methodological approach used. It presents the methodological approach, the subjects, the data collection tool and techniques, the statistical processing, and the strategies for interpreting the results.

## **4. Research Methodology**

### **4.1. Methodological approach**

The study was exploratory and quantitative. It consisted of a questionnaire survey. Specifically, the questionnaire was administered in three dimensions, namely: the issues involved in integration, the factors involved in implementing integration, and the conceptualisation and training of eco-citizens.

### **4.2. Subjects**

Subjects were selected according to the non-probability model. In fact, this involved occasional sampling. The sample of 71 managers was made up of 31 IGSEP managers, 20 IGEPsA managers, and 20 IGETPFQ managers.

### **4.3. Data Collection Tools and Techniques**

The study consisted of a questionnaire survey. Subjects were asked to respond to a Likert-scale questionnaire with 4 levels of agreement, namely: (1) strongly disagree, (2) somewhat agree, (3) quite agree, and (4) completely agree. This questionnaire, designed in accordance with [IOC \(2005\)](#) recommendations and validated with internal consistency ( $\alpha = 0.72$ ), included the following three dimensions:

ESDE integration issues containing 4 items: Education for the environmental

and sustainable development (ESDE) deserves to be integrated into schools, ESDE targets environmental issues and includes raising awareness of the nation and assessing the impact of human activities on natural resources, ESDE is exercised in a postural approach between the educational community, local authorities, stakeholders and associations working on this education; ESDE implementation factors comprising 3 items: the parties involved in environmental education must ensure that their activities are economically, socially and environmentally sustainable; the Inspectorates General, Directorates General and National Institute for Research and Educational Activities (NIREA) must be fully involved in the national strategy for ecological transition towards sustainable development, as well as the priority given to young people by raising their awareness of good practices that respect the environment and of living together on a planet with limited natural resources; the momentum for environmental education and sustainable development must be amplified at the same time throughout the education system; the conceptualisation and training of eco-citizens, comprising 4 items: along with social, economic and cultural issues, the environment is one of the pillars of sustainable development, which aims to achieve development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Sustainable development means not only training pupils now in the best practices for living together in a world with limited resources, but also providing them with the knowledge, skills, and culture that will enable them, throughout their lives, as citizens, to know, understand, decide and act on ecological issues. All pupils should be able to benefit from education about the environment and sustainable development through progressive training throughout their school career, both within a teaching discipline (PES) and within a subject area (Life and Earth Sciences, PES, science and technology, etc.). The themes used by teachers are linked to resources, major risks, climate change, biodiversity, sustainable cities, transport and mobility, regional planning and development, sustainable agriculture, and demographic issues.

#### 4.4. Statistical Processing

Once the questionnaires had been collected, the data were analysed. The data were entered and processed using Microsoft Excel. As the subjects were divided into three groups and the questionnaire was administered in a single way, the means were compared using analysis of variance (ANOVA).

### 5. Presentation of the Results

The aim of this study is to analyse the institutional approach to Environmental and Sustainable Development Education (ESDE) in PES in the Republic of the Congo, and it has been essential to present the issues involved in integrating ESDE into PES., the factors involved in its implementation, and the conceptualisation and training of eco-citizens.

### 5.1. The Challenges of Integrating Environmental Education and Sustainable Development into PES

The opinions of heads of institutions on the merits of integrating Education for the Environmental and Sustainable Development into schools, the environmental challenges of ESDE, national awareness of the impact of human activities linked to the exploitation of natural resources, the exercise of ESDE in the **Table 1**, gives the mean and standard deviation ( $\bar{x} \pm \delta$ ) of the opinions expressed by the various heads of institutions on the integration of environmental education and sustainable development into primary and secondary education.

**Table 1.** Opinions of the various heads of institutions on the integration of ESDE into PES.

	GIPSLE	GITVETQ	GISPE	Significance	
	(n = 20)	(n = 20)	(n = 31)	F	P
Merit of the integration of ESDE in EPS	3.25 ± 0.72	2.85 ± 0.93	3.32 ± 0.65***	298.08	<0.001
Environmental issues of ESDE	3.25 ± 0.72***	2.85 ± 0.93	3.06 ± 0.68	413.52	<0.001
National awareness of the impact of human activities linked to the exploitation of natural resources	3.05 ± 0.60	3.10 ± 0.64***	3.06 ± 0.68	413.52	<0.001
Exercise of ESDE in the postural the approach to the educational community, local authorities, and associations working on this education	3.00 ± 0.79	3.15 ± 0.59***	3.00 ± 0.86	294.30	<0.001

\*\*\*: Highly significant difference ( $P < 0.001$ ); GIPSE: General Inspectorate for Primary and Secondary Education; GITEQTE: General Inspectorate of Technical Education, Qualifying Training and Employment; GISPE: General Inspectorate for Sports and Physical Education.

Analysis of **Table 1** shows that the merit of integrating ESDE was significantly revealed by GIPSE managers compared with their counterparts at GIPSE and GITEQTE, while the environmental challenges of ESDE were significantly mentioned by GIPSLE managers compared with those at GITEQTE, GIPSE, and GDPESUS ( $P < 0.001$ ). On the other hand, national awareness of the impact of human activities linked to the exploitation of natural resources and the practice of ESDE in the postural approach between the educational community, local authorities, and associations working for this education were significantly raised by the heads of the GITEQTE than by those of the GIPSLE and the GIPSE ( $P < 0.001$ ).

### 5.2. Factors for implementing ESDE in PES

**Table 2** also presents, in the form of the mean and standard deviation ( $\bar{x} \pm \delta$ ), the opinions of institutional managers on ensuring the sustainability of socio-economic and environmental activities, institutional inclusion in the national strategy for raising awareness of good practices that respect the environment, and the concomitant amplification of the ESDE dynamic throughout the education system.

**Table 2.** Opinions of the various heads of institutions on the factors for implementing ESDE in PES.

	GIPSLE	GITEQTE	GIPSE	Significance	
	(n = 20)	(n = 20)	(n = 31)	F	P
Ensuring the sustainability of socio-economic and environmental activities	3.10 ± 0.45	2.90 ± 0.45	3.16 ± 0.82***	411.05	<0.001
Registration in the national strategy to raise awareness of good environmentally friendly practices	3.30 ± 0.66***	3.15 ± 0.67	3.06 ± 0.77	375.94	<0.001
Concomitant amplification of the ESDE dynamics throughout the educational system	2.60 ± 0.88	2.15 ± 0.93	2.71 ± 0.94***	124.07	<0.001

\*\*\*: Highly significant difference ( $P < 0.001$ ); ESDE: Education for the Environmental and Sustainable Development; GIP-SLE: General Inspection of Primary and Secondary Education; GITEQTE: General Inspectorate of Technical Education, Qualifying Training and Employment; GIPSE: General Inspectorate of Sports and Physical Education.

A reading of **Table 2** reveals that the assurance of the sustainability of socio-economic and environmental activities and the concomitant amplification of the dynamics of ESDE throughout the education system was mentioned more by the heads of the GIPSE than by those of the GIPSLE and those of the GITEQTE ( $P < 0.001$ ). On the other hand, institutional inclusion in the national strategy for raising awareness of good practices that respect the environment and living together on a planet with limited natural resources was significantly more important for GIPSLE than for GITEQTE and GIPSE ( $P < 0.001$ ).

### 5.3. Institutional Leaders' Views on the Training of Eco-Citizens in Physical Education and Sport

The statements made by the heads of the institutions on the constitution of ESDE, the need to train ecological citizens, the obligation of ESDE through progressive, cross-disciplinary training of eco-citizens, and educational intervention in PES. Using the ecological approach was recorded in **Table 3** in the form of the mean and standard deviation ( $\bar{x} \pm \delta$ ).

**Table 3.** Institutional managers' perceptions of training for eco-citizens.

	GIPSLE	GITEQTE	GIPSE	Significance	
	(n = 20)	(n = 20)	(n = 31)	F	P
Constitution of the ESDE	2.95 ± 0.94	2.50 ± 0.61	3.06 ± 0.57***	276.07	<0.001
Need for the training of ecological citizens	3.40 ± 0.60***	3.00 ± 0.73	3.23 ± 0.62	453.20	<0.001
Obligation of progressive and transversal training of ecological citizens	3.10 ± 0.55	2.95 ± 0.83	3.29 ± 0.90***	267.30	<0.001
Educational intervention in PE according to the ecological approach	2.0 ± 0.98	2.35 ± 0.67	2.81 ± 0.75***	184.11	<0.001

\*\*\*: Highly significant difference ( $P < 0.001$ ); ESDE: Education for the Environmental and Sustainable Development; GIP-SLE: General Inspection of Primary and Secondary Education; GITEQTE: General Inspectorate of Technical Education, Qualifying Training and Employment; GIPSE: General Inspectorate of Sports and Physical Education.



The values recorded in **Table 3** show that the Constitution of ESDE was mentioned more by GIPSE managers than by GIPSLE and GITEQTE managers ( $P < 0.001$ ). On the other hand, the need for training in environmental citizenship was significantly higher for GIPSLE managers than for GITEQTE and GIPSE managers ( $P < 0.001$ ). In addition, GIPSE managers were significantly more likely than their colleagues in other General Inspectorates (GIPSLE and GITEQTE) to point out the need for progressive and cross-disciplinary training for ecological citizens and the need for educational intervention in PES using an ecological approach ( $P < 0.001$ ).

## 6. Discussion

The purpose of this study was to analyse the institutional approach to Environmental and Sustainable Development Education (ESDE) in the Republic of Congo. At the start of our study, we thought that the institutional approach of the various stakeholders in the Congolese education system to ESDE was disparate. This preliminary analysis formed the hypothesis of the study. Testing this hypothesis required a questionnaire survey with 4 levels of assessment. The questionnaire is a means of investigation in the Sciences of Intervention in general and in the Didactics of PES in particular. Thus, the results obtained are of no less interest. ESDE is currently a major global concern, and its integration into the education system is essential. The United Nations has called on “all member countries to implement a national strategy for ESDE” (UNESCO, 2009: pp. 4-7).

This integration of ESDE must be initiated by the noosphere, which is responsible for organising educational action. The results obtained show a greater revelation of the merit of integrating ESDE by GIPSE managers than by their GIPSLE and GITEQTE counterparts ( $3.32 \pm 0.65$  vs  $3.25 \pm 0.72$  and  $2.85 \pm 0.93$ ;  $P < 0.001$ ), while the GIPSE and GITEQTE managers ( $3.32 \pm 0.65$  vs  $3.25 \pm 0.72$  and  $2.85 \pm 0.93$ ;  $P < 0.001$ ).

The environmental issues of ESDE were significantly mentioned by GIPSLE managers compared with those of GITEQTE, GIPSE, and GDPESUS ( $3.25 \pm 0.72$  vs  $3.06 \pm 0.68$  and  $2.85 \pm 0.93$ ;  $P < 0.001$ ) (**Table 1**). These results can be explained by the adoption of an ecosystemic approach based on environmental management principles requiring the training of eco-citizens in PES. It has been recommended that “the current role of citizenship education through education should be strengthened as part of current and future reforms” (Conseil de l'Europe, 2002: pp. 8-15). Schools are the only social institutions capable of reaching all adolescents at a time in their lives when value orientations are being developed and consolidated (Mélanie & Bernard, 2011). Obviously, the school's contribution can be enhanced by taking greater account of the needs of young people. The corresponding skills, methods, and content in the curricula, particularly for PSHE, Life and Earth Sciences, social sciences, economics, and values education, or as part of interdisciplinary projects involving several subjects.

On the other hand, the GITEQTE managers were significantly more likely than



their GIPSLE and GIPSE counterparts to mention national awareness of the impact of human activities linked to the exploitation of natural resources ( $3.10 \pm 0.64$  vs  $3.06 \pm 0.68$  and  $3.05 \pm 0.60$ ;  $P < 0.001$ ) and the practice of ESDE in the postural approach between the educational community, local authorities and the general public and associations involved in this education ( $3.15 \pm 0.59$  vs  $3.00 \pm 0.79$  and  $3.00 \pm 0.86$ ;  $P < 0.001$ ). This is attributable to the ethos of the production sector in teaching pupils in technical and vocational lycées to act with a view to growth while respecting environmental principles, particularly in PE. In this respect, **Du-rand (2008: pp. 11-15)** noted that educating for sustainable development in Physical Education and Sport, as part of a project in which each learning unit (cycle, lesson) is based on the following principles: the responsibility to protect others through individual tasks of maintenance and environmental protection, the precaution of being aware of the collective impact during physical activity, the application of environmental standards laid down by the institution, equality of opportunity, the rules of the game.

The integration of ESDE in PES is determined by a number of factors. Assurance of the sustainability of socio-economic and environmental activities was significantly mentioned by GIPSE managers compared to GIPSLE and GITEQTE managers ( $3.16 \pm 0.82$  vs  $3.10 \pm 0.45$  and  $2.90 \pm 0.45$ ;  $P < 0.001$ ) (**Table 2**). This greater emphasis on economic, social, and environmental assurance of activities by stakeholders can be attributed to the techno-economic type of sustainable development (**Diemer, 2012: pp. 73-94**).

However, GIPSLE officials note more the inclusion in the national strategy for raising awareness of good environmentally friendly practices compared to those of GITEQTE compared to those of GIPSE ( $3.30 \pm 0.66$  vs  $3.15 \pm 0.67$  and  $3.06 \pm 0.77$ ;  $P < 0.001$ ) (**Table 2**). These results are dependent on the valorization of social development. Such an approach requires the admission of a social value in relation to the environment that can be transmitted from generation to generation (Agenda 21, Eco-campus, Green Campus, etc.).

Furthermore, the concomitance of the amplification of the dynamics of ESDE in the entire educational system is significantly more perceived by the managers of the GIPSE than those of the GIPSLE and the GITEQTE ( $2.71 \pm 0.94$  vs  $2.60 \pm 0.88$  and  $2.15 \pm 0.93$ ;  $P < 0.001$ ) (**Table 2**). These results are linked to the relationship between the sports community and the physical and social environment. According to the **IOC (2005: p. 6)**, “the notions of sport and environment are in fact closely associated and cannot be approached independently of each other”. This institution added that the success of any action in the environmental sector is closely linked to the collaboration between all parties. Consequently, the solution to environmental problems must go through planning in close collaboration with local and regional authorities and interested parties.

ESDE is oriented towards the training of eco-citizens. In this study, the opinions of GIPSE managers are significantly more preponderant than those of GIPSLE managers and GITEQTE managers regarding the constitution of ESDE ( $3.06$

$\pm 0.57$  vs  $2.95 \pm 0.94$  and  $2.50 \pm 0.61$ ;  $P < 0.001$ ) (**Table 3**). These results indicate the good understanding of the concept of Sustainable Development by these GIPSE managers insofar as “the notion of sustainable development aims to take into account, in addition to the economy, environmental and social aspects that are linked to long-term issues” (*Rapport de Brundtland*, 1987: p. 14).

However, the need for training ecological citizens is more pronounced by the GIPSLE managers, followed by the opinions of the GIPSE and GITEQTE managers ( $3.40 \pm 0.60$  vs  $3.23 \pm 0.62$  and  $3.00 \pm 0.73$ ;  $P < 0.001$ ) (**Table 3**). This training allows subjects to appropriate ESDE in order to face environmental challenges. In this regard, faced with the ecological and social crisis that is manifesting itself in a globalized manner (climate change, shortages of drinking water, food security, scarcity of natural resources, growth of the world population, deforestation, and drastic loss of biodiversity, etc.), ESDE is a response from all social and cultural actors in development. However, GIPSE officials have spoken out more about those of GIPSLE and GITEQTE on the subject of the obligation of progressive and transversal training of ecological citizens ( $3.29 \pm 0.90$  vs  $3.10 \pm 0.55$  and  $2.95 \pm 0.83$ ;  $P < 0.001$ ), the pedagogical intervention in PE according to the ecological approach ( $2.81 \pm 0.75$  vs  $2.70 \pm 0.98$  and  $2.35 \pm 0.67$ ) (**Table 3**). This important position of the leaders of the GIPSE is based on new universal values, among others: responsibility, ecological participation, the precautionary principle, etc.

The fight for environmental education and sustainable development must be part of all institutions. It is necessary to ensure that environmental education and sustainable development are an integral part of the initial training of pupils and students at the higher and university levels. It is for this purpose that, for schools, higher institutes, and official and private universities in Brazzaville, 2 points are important to note: 1) the representation that countries of the South have of sustainable development, 2) the awareness of education for sustainable development in the Congolese education system...

It is clear that the practical implications of the disparities observed between GIPSLE, GIPSE, and GITEQTE are a strong added value for the implementation of a unified ESDE strategy.

In simple terms, this process focused on sustainable development assumes that the Congolese Government will have to take measures, integrate them, and strengthen its action around economic, socio-educational, and environmental objectives. This essential option will be the means to maximize the well-being of the community without compromising the ability of future generations to take charge of themselves. Furthermore, reducing poverty and achieving international development goals are imperatives for the current generation in the general context of sustainable development.

## 7. Conclusion

The results we have reached have made it possible to show that the leaders of the institutions specific to PE perceive the merit of the integration of Education for

the ESDE, the assurance of the sustainability, and the concomitance of the amplification of the dynamics of ESDE, the conceptualization of ESDE while the environmental issues of this education are recognized by those of general education and national awareness and exercise in the process are more mentioned by those responsible for technical education. These results show a divergence of opinions of those responsible for Congolese educational institutions on ESDE.

The limitations of this study include its quantitative design, which does not allow for causal relationships to be established, and the possibility of social desirability bias in the responses to the questions. Also, the small sample size and the lack of qualitative data constitute a weakness for this study. In reality, an associated qualitative approach would be interesting.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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