

curriculum (re)construction. It is difficult to achieve this 'balance' since the identity of science cannot be ignored by teaching only what students want, what teachers like, or even considering only the context in which they are inserted. In fact, it is important to stress there are certain contents that should and need to be developed in class, regardless of the tastes and preferences of students and teachers.

BIBLIOGRAPHY

- BAGANHA, D.E.; GARCIA, N.M.D. O papel e o uso do livro didático de Ciências nos Anos Finais do Ensino Fundamental. In: VIII Encontro Nacional de Pesquisa em Educação em Ciências. 2011, Campinas - São Paulo. *Anais...* Campinas, 2011.
- BARDIN, L. *Análise de Conteúdo*. Lisboa: Ed. 70. 1977.
- BRASIL. Diretrizes Curriculares Nacionais da Educação Básica. Ministério da Educação. Brasília, 2013.
- _____. Secretaria da Educação Básica. *Guia de Livro Didático 2007: Ciências: séries/ anos iniciais do ensino fundamental/ Secretaria de Educação Básica*. – Brasília: Ministério da Educação, 2006.
- CACHAPUZ, A.; GIL-PÉREZ, D.; PESSOA, A. M.; PRAIA, J.; VILCHES, A. A necessária renovação do ensino das Ciências. São Paulo: Cortez, 2005.
- COOK-SATHER, A. Authorizing Students' Perspectives: Toward Trust, Dialogue, and Change in Education. *Educational Researcher*, v.31, n.4, p.3-14, maio.2002.
- _____. Sound, Presence, and Power: "Student Voice" in Educational Research and Reform. *Curriculum Inquiry*, v.36, n. 4, p. 359-390, dez 2006.
- FIELDING, M. Students as radical agents of change. *Journal of Educational Change*, v.2, p. 123-141, 2001.
- FREITAG, B.; MOTA, V. R.; COSTA, W. F. O livro didático em questão. 3. ed. São Paulo: Cortez, 1997.
- FRISON, M. D.; VIANNA, J.; CHAVES, J. M.; BERNARDI, F. N. Livro didático como instrumento de apoio para construção de propostas de ensino de Ciências Naturais. In: Encontro Nacional de Pesquisa em Ensino de Ciências, VII, 2009, Florianópolis. *Anais...* Florianópolis: ENPEC, 2009.
- GALIAN, C.V. A recontextualização e o nível de exigência conceitual do conhecimento escolar. *Educação e Pesquisa*, São Paulo, v. 37, n. 4, p. 763-778, dez. 2011.
- GEDROVICS, J. ; BILEK, M.; LAKHVICH, T.; TOLENTINO-NETO, L. C. B.. Students interest in science topics as an indicator of their attitudes to science: An international comparison. *Journal of Science Education*, v. 15, p. 8-13, 2014.
- JENKINS, E.W. The Student Voice and School Science Education. *Studies in Science Education*, v.42, n.1, 2006.
- MITRA, D.L. The Significance of Students: Can Increasing "Student Voice" in Schools Lead to Gains in Youth Development? *Teachers College Record*. v. 106, Number 4, April 2004, p. 651-688.
- POLMAN, J.L.; PEA, R.D. (2001). Transformative Communication as a cultural tool for guiding inquiry science. *Science Education*, 85, 223-38.
- ROBSON, C. TAYLOR, C. Student voice as a contested practice: Power and participation in two student voice projects. *Improving Schools*, vol. 16, n. 1, p. 32-46, 2013.
- SANTOS-GOUW, A.M. As opiniões, interesses e atitudes dos jovens brasileiros frente à ciência: uma avaliação em âmbito nacional. 2013. 242f. Tese (Doutorado em Educação) - Faculdade de Educação, Universidade de São Paulo. 2013.
- SAVIANI, D. *Pedagogia Histórico-crítica: Primeiras aproximações*. 7ed. Campinas, SP, 2000.
- SILVA, R.C.; CARVALHO, M.A. O Livro didático como instrumento de difusão de ideologias e o papel do professor intelectual transformador. In: III Encontro de Pesquisa em Educação da UFPI e II Congresso Internacional em Educação, 2004, Teresina, Piauí. Disponível em: <http://www.ufpi.br/ppged/index/pagina/id/2006> Acesso em 25 jul. 2014
- SJØBERG, S. Science and Scientists: The SAS-study. *Acta Didactica* 1/2000, v.1, 75 p. 2000.
- SOARES M. B. Novas práticas de leitura e escrita: letramento na Cibercultura. *Educação e Sociedade*: dez. 2002, v. 23, n. 81, p. 141-160.
- TOLENTINO-NETO, L. C. B. de. Os interesses e posturas de jovens alunos frente às ciências: resultados do Projeto ROSE aplicado no Brasil. 2008. 172f. Tese (Doutorado em Educação) – Faculdade de Educação, Universidade de São Paulo.

Received 04-11-2015 /Approved 30-11-2016

What do students think about animal welfare? A survey in different contexts ¿Cómo es la actitud de los estudiantes hacia el bienestar animal? Una encuesta realizada en diferentes contextos

MAZAS GIL B. ¹, FERNÁNDEZ-MANZANAL R. ¹, MARÍA LEVRINO G. A. ²

¹ Departamento de Didáctica de las Ciencias Experimentales. Facultad de Educación. ² Departamento de Producción Animal y Ciencia de los Alimentos. Facultad de Veterinaria. Universidad de Zaragoza, Spain, levrino@unizar.es, bmazas@unizar.es, roferma@unizar.es

Abstract

This article presents a study comparing attitudes towards animal welfare across a sample of 897 students, ages 11 to 26, from secondary school to university, in three different countries: Spain, Colombia and Austria.

An individual's attitude towards animal welfare includes aspects such as animal abuse for pleasure or due to ignorance, issues related to leisure with animals, the relation to farm animals and the phenomenon of animal abandonment. The instrument we used in this study is a Likert-type attitude scale questionnaire with five answers previously validated, known as the Animal Welfare Attitude (AWA) Scale.

Our results show that students tend to reject items related to animal abuse for pleasure or due to ignorance. Issues related to leisure with animals had the lowest mean values on the AWA Scale; furthermore, with regard to the country of origin, Spain was found to have the lowest scores. It was also found that females generally display a more positive attitude to animal welfare than males, and students of urban origin over those of rural origin.

Keywords: animal welfare, attitudes, education, students, questionnaire

Resumen

Este artículo presenta un estudio sobre actitudes hacia el bienestar animal realizado con una muestra de 897 estudiantes de Secundaria y Universidad, de edades comprendidas

entre 11 y 26 años, en tres países diferentes: España, Colombia y Austria. La actitud hacia el bienestar animal incluye aspectos como el maltrato animal por placer o por desconocimiento, temas relacionados con el ocio con animales, la situación de los animales de granja y el abandono de mascotas. El instrumento que se ha utilizado es un cuestionario validado de actitudes tipo Likert, conocida como actitudes hacia el bienestar animal (en inglés, AWA Scale). Nuestros resultados muestran que los estudiantes tienen tendencia a rechazar ítems que tienen que ver con el maltrato animal por placer o desconocimiento. Los aspectos relacionados con el ocio con animales obtuvieron los menores valores medios de la AWA Scale; y centrándonos en el país de origen, España recibió los peores resultados. Se observó también que las alumnas expresan una actitud más positiva hacia el bienestar animal que los alumnos, así como los de origen urbano con respecto a los de origen rural.

Palabras clave: bienestar animal, cuestionario, educación, estudiantes

INTRODUCTION

As noted by Horgan and Gavinelli (2006), European society currently ascribes an increasingly important role to the issue of animal welfare, and also in the curricula of some countries (Marsden, 2010). The question arises as to whether or not animal abuse could be prevented by a change of attitude in cases where it is necessary. We thus need to be able to measure

such attitudes, in order to draw up programmes that could contribute towards positive change in this area, as a part of the environmental education, particularly regarding the protection and care of animals and of biodiversity in general that should be treated as a major topic in science subjects taught at primary and secondary schools. Furthermore, it would be of interest to consider the importance and advisability of education on animal welfare during the critical period of adolescence. The protection of biodiversity is nowadays one of the most important aspects of our relationship with the environment. This has been understood by researchers such as Tyler Miller (1992), who concludes that humanity is totally dependent on biological capital to the point of noting that biodiversity is the “insurance policy” of nature. The Living Planet Index shows how biodiversity has changed on Earth in the last 35 years. In little more than a quarter century, we have lost almost a third of the biological wealth of our planet. Our study about attitudes towards animal welfare aims to explore various aspects, including harming or killing animals for fun, as proposed in several items of the AWA Scale. For example, ‘I like to go hunting’ or ‘killing small animals is my hobby’. Improving attitudes about animals will help teens and adults consider how they may be mistreating animals, and how the preservation of species is vital for nature and the environment.

So, the main objective in this study was to find out more about the attitude towards animal welfare in Secondary and University students, using the AWA Scale. At the same time we analysed the effect of gender, origin (rural or urban) and country on attitudes towards animal welfare, looking for the explanation of the differences in some educational determinants of the countries.

The importance of attitudes towards animal welfare has been highlighted in literature by many authors (Broom, 2005; Heleski and Zanella, 2006; Kellert and Berry, 1980; Serpell, 2004). With different philosophical approaches, these studies point out that people’s attitudes toward animals depend on traditional practices, on the acquisition of knowledge from education or training, on personal experience, general beliefs and, essentially, the teachings received at an early age. According to Taylor and Signal (2005), ‘*humane education is being posited as one particularly effective mechanism whereby a lack of human-directed empathy may be remedied by teaching animal-welfare appropriate attitudes*’. Students are immersed in the reality of the society in which they will develop on a social level; it is thus considered highly important to understand their attitude towards animals.

To comprehend different attitudes regarding the use of animals, certain studies have concentrated on analysing them in connection with a series of individual characteristics such as gender, personality, experience with animals or age (e.g. Furnham and Pinder, 1990; Plous, 1996). Welfare and protection of farm animals are judged differently depending on the species. In general, those species subjected to more intensive farming systems in cages with spatial limitations (e.g. laying hens) are perceived as having poorer welfare conditions than other species such as cattle or horses. In line with this idea, respondents tend to indicate that improving current levels of welfare and protection for animals is a priority issue. Likewise, among consumers’ personal factors in relation with farm animals, some studies demonstrate that variables such as level of education, occupation, lifestyle and perceptions about welfare are the main determinants of their welfare-friendly behaviour (Miranda-de la Lama et al., 2013).

Other factors associated with the type of animal that affect animal welfare perception have also been noted: factors such as cognitive level and judgemental ability. People with high abilities in those areas tend to be opposed to the use of animals for nourishment, public display or scientific research (Hills, 1995; Knight et al., 2004). As has been shown, if people believe that it is probable that animals have thoughts and feelings, they deem the use of animals for the above-mentioned purposes unacceptable (Knight et al., 2009). However, when people assume that animals are not capable of thought, they tend to find a higher degree of justification for their use.

Evidence that attitudes to animal welfare partly depend on the cultural background of a society or country has been provided by Phillips et al. (2012). In their study comparing the attitudes of European and Asian university students towards animal welfare, Europeans showed greater concern for animal welfare-related issues than Asian students. Furthermore, among the European students, those from Scandinavia and Eastern European countries displayed the most positive attitudes towards animal welfare.

METHODS

Questionnaire

Research into attitudes has been mainly carried out in fields such as tobacco policy, health issues, sexual harassment or racism, but of all the social issues that face us in this millennium, the most daunting are environmental problems (Fernández-Manzanal, Rodríguez-Barreiro and Carrasquer, 2007; Zelezny and Schultz, 2000). We know little about the attitudes that students have towards animal welfare, possibly due to the lack of specific scales of measurement. The instrument applied in this study is the Animal Welfare Attitude Scale. It can tell us about the attitudes of secondary school and university students regarding the treatment of animals, the care animals need, leisure activities with animals or their abandonment. The Scale was developed based on this idea, helping us to gain an insight about our responsibilities and the relationship between humans and animals. It also considers which aspects of animal welfare can be incorporated into education to improve understanding and to raise awareness of animal welfare issues (Mazas et al., 2013).

At the centres participating in the study, the scale was handed out personally to students by the teachers of the sampled year groups. The questionnaire’s first section asks students to provide information about their gender, rural or urban origin and nationality, as well as the academic year and centre they belong to. This information is essential in order to establish subsequent comparisons among the different variables.

The questionnaire was presented in the usual attitude scale format: answers express a degree of agreement with the contents of the item (Spector, 1992). In this case it was a Likert-type scale with five possible answers in the questionnaire: ‘strongly agree’, ‘agree’, ‘indifferent’, ‘disagree’ and ‘strongly disagree’.

According to Carretero-Dios and Pérez (2005), in each country the attitude scales should share the same semantic content and the same psychometric properties, so that a country-by-country factor structure can be established.

With regard to the content expressed in each statement, items were grouped under several components that make up the animal welfare scale. Component C1 (Animal abuse for pleasure or due to ignorance) comprises statements in which the subjects can express their agreement or disagreement with the type of treatment animals receive, as well as statements in which they reveal their knowledge thereof regarding situations that produce animal suffering. Component C2 (Leisure with animals) comprises statements regarding traditional or non-traditional activities that can be classed as recreational shows in which animals suffer. Component C3 (Farm animals) contains items relating to animals’ living conditions on farms, such as the space available to them, freedom of movement, comfortable environment, production rate in relation to the real or potential suffering caused by being kept in captivity in adverse conditions, or the protection of farm animals by law. Component 4 (Animal abandonment) includes items referring to circumstances that would lead students to abandon their pets.

Participants

This study analyses responses to the attitude scale provided by a total sample of 897 students from the following countries: Spain (N=612 students), Colombia (N=140 students) and Austria (N=145 students). The composition of the sample is the result of availability of potential subjects in those three countries at the time when the study was carried out. Most of the sample was gathered in Spain due to the authors’ proximity and access to classrooms, and to the greater relevance assigned in our country to the investigation’s results. The students that comprised the sample were aged between 12 and 26, and were either in secondary education or at a university in their countries. Most of them (95%) were between 12-22 years-old. In Colombia, a teacher collaborating with our study likewise distributed and gathered the questionnaires at a secondary school, as her time and availability permitted. In Austria, a professor collaborating with our study personally distributed the questionnaires in their German version at a series of secondary schools and universities. We had to take into account that there are different cultures among these countries, even between the Europeans, and that might be why we did find different attitudes towards animal welfare, as others have before (Phillips, 2012).

RESULTS AND DISCUSSION

The data presented below refer to the attitude scale rating according to the variables of gender (male, female), origin (rural or urban) and country (Spain, Colombia and Austria).

Table 1 displays the mean values of each item for the entire sample. The means of the items provide us with a clearer vision of which items are

favourable and which unfavourable towards animal welfare. In relation to education, it is important to know which items are rated the lowest by students. A score below 4 is considered to be a non-favourable attitude, and above 4 favourable. The highest means (scores of 4.7 or above) are found for items i1, i2, i4 and i17. These four items (with the negative wording in the last two cases duly recoded to express a positive stance) indicate the greatest acceptance of animal welfare and are considered to reflect a highly favourable attitude towards animal welfare.

Table 1. Mean values of the items used in the reduced version of the AWA Scale.

Nº	Item statement	Mean	SD	Component
1	Animals suffer; they get hurt when you beat them	4.83	0.48	C1
2	Every domestic animal should be taken care of	4.88	0.36	C1
3	I have the right to beat an animal if it is annoying me	4.36	0.90	C1
4	I like bullfighting because it is a sign of Spanish identity	3.54	1.35	C2
5	I would beat my pet if I got angry	4.46	0.79	C1
6	I sometimes have fun chasing animals	4.00	1.24	C1
7	I think that animals suffer from both physical and psychological diseases	4.08	1.05	C3
8	Animals used in shows are not being respected	3.22	1.21	C2
9	I would never beat my pet in order to educate it	4.29	1.24	C1
10	I am concerned about bulls suffering in the bullring, even if it only lasts for a few minutes	4.12	1.14	C2
11	I would love to go hunting	4.19	1.17	C2
12	Farm animals should be kept in cages so that they can be easily managed	3.89	1.09	C3
13	Animal shows are events where people have fun at the expense of their suffering	3.20	1.33	C2
14	I would leave an animal in the countryside if I got bored with it	4.43	1.07	C4
15	Farm animals are not affected by their living conditions because they are inferior living beings	4.32	0.93	C3
16	Abandoned animals feel free	4.15	1.10	C4
17	Killing small animals, for example, sparrows or pigeons, is my hobby	4.70	0.83	C1
18	Animal abandoning is a very cowardly and irresponsible practice	4.42	1.13	C4
19	Farm animals do not suffer	4.13	1.07	C3
20	I would love to collaborate with a shelter for abandoned animals	3.51	1.29	C4
21	I would never abandon my pet	4.61	0.94	C4
22	Animals must be protected by law	4.17	0.97	C2
23	I always buy pets from pet shops; the ones in animal shelters are old and ugly	3.85	1.11	C4
24	I feel very sad when bulls suffer in the bullring while people are having fun	4.05	1.19	C2
25	Aggressive animals should be immediately sacrificed because they cannot be tamed	3.86	1.15	C3

Lower means (scores of 3.5 or lower) were obtained with the statements i13, i8 and i20. These items are the ones that show the poorest acceptance of animal welfare and in these cases are considered to reveal a lower attitude towards animal welfare than the others.

Regarding gender, male and female students do not have similar attitudes towards animal welfare (Table 2). The mean for male students is lower than that of female students in all components. Significant differences ($P \leq 0.05$) between genders were detected for all components as well. Observing the η^2 value, it can be noted that a considerable amount of the explained variance is due to gender, especially in Component C1, in which 9.0% of the attitude towards 'Animal abuse for pleasure or due to ignorance' is influenced by gender.

Table 2. Comparison of the different Components in function of the gender of the students.

	Gender	N	Mean	SD	F	P-value	η^2
C1. Animal abuse for pleasure or due to ignorance	Males	347	4.32	3.94	88.18	0.000	0.090
	Females	550	4.62	2.64			
C2. Leisure with animals	Males	347	3.54	6.01	58.69	0.000	0.062
	Females	550	3.94	4.70			
C3. Farm animals	Males	347	3.91	3.30	33.38	0.000	0.036
	Females	550	4.15	2.86			
C4. Animal abandonment	Males	347	3.95	3.68	72.83	0.000	0.075
	Females	550	4.30	3.46			

This is in agreement with other studies using the AWA Scale, such as Mazas et al. (2013), and also in the specific literature available (Herzog, Betchart and Pittman, 1991; Paul and Podberscek, 2000; Phillips and McCullough, 2005; Phillips et al., 2011, 2012). Male students obtain the lowest scores; thus we can deduce that their attitude is less favourable towards animal welfare than that of females. Peek, Bell and Dunham (1996) suggested that this may be due to the functions generally taken up by women in society. According to their hypothesis, since women take on a greater amount of responsibility for bringing up children, they tend to have greater empathy and attitudes of caring towards others. Apart from the issue of animal welfare, women have also shown more favourable attitudes towards other constructs or attitude objects that are in some way related, such as environmental issues (Fernández-Manzanal et al., 2007).

Table 3. Comparison of the different Components in function of the rural or urban origin of the students

		N	Mean	SD	F	P-value	η^2
C1. Animal abuse for pleasure or due to ignorance	Rural	178	4.43	4.20	4.63	0.032*	0.005
	Urban	719	4.52	3.10			
C2. Leisure with animals	Rural	178	3.61	6.02	11.14	0.001*	0.012
	Urban	719	3.83	5.21			
C3. Farm animals	Rural	178	4.00	3.27	2.00	0.158	
	Urban	719	4.07	3.04			
C4. Animal abandonment	Rural	178	4.07	3.71	4.68	0.031*	0.005
	Urban	719	4.18	3.68			

The results according to urban vs. rural origin of the student groups are shown in Table 3. In this case there are also significant differences in three components, in which students from rural zones display a lower mean than those from urban zones (in components C1, C2 and C4). These results corroborate and concur with those reported in other studies (Serpell, 2004) which allow us to conclude that there is a more unfavourable attitude towards animal welfare in the rural environment than in an urban context. One explanation of this result could be that in rural areas, in contrast with urban locations, more people are employed in industries of the primary

sector that have a lower sensibility towards animal welfare, as Signal and Taylor (2006) verified.

In Table 4 it can be seen that the highest score in Component C1 (Animal abuse for pleasure or through ignorance) was obtained in Austria (M=4.60); there are significant differences for Colombia, but not for Spain. In the case of Colombia there are significant differences with the other countries and it presents the lowest score, although still remaining within the pro-animal-welfare range, indicating that the students do not sympathize with actions that lead to animal suffering.

The C2 component (Leisure with animals) reveals the lowest scores in comparison with the other components. The lowest score was recorded in Spain (M=3.65). These results suggest that the students are more tolerant of the use of animals for shows, festivals or other entertainment activities, although, having analysed the *post hoc* comparison, significant differences were found with Austria (M=3.95) and with Colombia (4.20). There is a considerable mean difference in Component C2 in the case of Colombia, which has the highest score. The η^2 value is 0.072, so that it can be said that the students' country has an influence of about 7.2% on the attitude towards Component C2. As previously mentioned, traditions in Spain with profound cultural roots tend to contribute towards a certain degree of desensitization regarding traditional shows in which animals suffer. While many people defend tradition above all else, others raise their voices to demand an end to these activities. It is also important to highlight that, although people are sensitive to the fact that bullfights involve animal suffering, they are likewise against unilateral EU prohibitions and point towards financial benefits in the form of the jobs which can emerge in sectors associated with this type of event. However, in the case of Colombia, respondents recorded higher scores for leisure with animals than those in Spain, although it is a country with a bullfighting tradition. Colombia may differ from Spain due to a lower value assigned to bullfighting by new generations of students and society in general. In Bogotá, bullfights were banned in 2012, but the ban was recently lifted. However, even the bullfighters themselves recognize that bullfighting supporters represent a minority in Colombian society.¹

Table 4. Comparison of the different Components regarding the country

	Country	N	Mean	SD	F	P-value	η^2
C1. Animal abuse for pleasure or due to ignorance	Spain	612	4.51	3.26	6.96	0.001	0.015
	Colombia	140	4.39	2.65			
	Austria	145	4.60	4.16			
C2. Leisure with animals	Spain	612	3.65	5.54	34.63	0.000	0.072
	Colombia	140	4.20	3.90			
	Austria	145	3.95	4.92			
C3. Farm animals	Spain	612	4.08	2.98	1.28	0.280	
	Colombia	140	4.02	3.07			
	Austria	145	4.00	3.53			
C4. Animal abandonment	Spain	612	4.27	3.27	65.81	0.000	0.128
	Colombia	140	4.21	3.51			
	Austria	145	3.66	4.08			

In the case of C3 (Attitude towards farm animals), significant differences were not detected in a pair-by-pair comparison between countries. All three countries had scores ranging between 4.00 and 4.08, which indicates that there are no significant differences between Spain, Colombia and Austria.

The C4 component (Animal abandonment) obtained the lowest scores in Austria (M=3.66), and significant differences can be observed with the two other countries. In this case the η^2 value is 0.128, which represents 12.8% of variance. Austrian citizens tend to have a positive attitude towards animal welfare. An example of this is the 'Animal Welfare at School' programme, a state-run project that guarantees the integrity and quality of animal welfare teachers and their teaching, and which deals with a range of animal welfare issues depending on student age². The low scores obtained in C4 (Animal

abandonment) are hence difficult to explain in view of the results of the other components and the existence of such educational programmes. Those kind of programs do not exist in Spain or Colombia. It will probably be necessary to conduct further studies in order to come up with a reasonable explanation for these seemingly contradictory results. Perhaps the Austrian subjects assume that whenever owners are motivated to abandon their pets, animal shelters will take care of the animals (in Austria, shelters for abandoned pets are partially state-financed, but authorities are under no legal obligation to assume their care).

CONCLUSIONS AND ANIMAL WELFARE IMPLICATIONS

It is not surprising that different attitudes towards animal welfare can be observed depending on certain socio-demographic variables, as previous studies using the AWA Scale have shown. Thus, living in a certain country with its own particular culture can result in different student attitudes towards animal welfare. Furthermore, the fact of being male or female is also a differentiating factor in a person's overall attitude towards animal welfare, women being more sensitive than men. Our results suggest that the attitude of an individual towards animal welfare may have a component related with the level of education attained: university students were found to be more sensitive than students at lower levels in the education system. Regarding the rural or urban origin of students, differences were also observed: students from rural areas generally display a less favourable attitude towards animal welfare than their urban counterparts.

In view of these results, we find that it would be important to conduct further research on student attitudes towards animal welfare. Among the attitudes we have studied, understanding why particular ones are relevant to people's behaviour towards animals (e.g. farming practices, consumer behaviour, support of zoos or recreational uses of animals, etc.) can play an important role in developing effective ongoing educational strategies in Science lessons. The improvement in the evaluation of AWA scale items could be useful to evaluate education programs, to raise awareness about the welfare of the closest animals and the protection of animals in general.

The dearth of existing scientific evaluations in this field is an impediment in developing more effective educational activities or eliminating those which do not fulfil their mission. Evaluations using validated scales such as the AWA Scale therefore play a fundamental role in helping us develop serious, high-quality animal welfare education programmes. Animal welfare issues should be included more in educational environmental content, particularly regarding the defense of animal diversity, an aspect we regard as basic in ensuring sustainability. The cost of the loss in biodiversity will be passed on to future generations. Recovery from such losses will likely be impossible or very difficult. Hence we can say that the loss of biodiversity is unsustainable (Albareda, 2015). This could be an initial path towards raising students' awareness to the fact that, in order for us to improve society from within, animal welfare needs to be considered. We are firmly convinced that education is one of the most important activities that can help to reduce the abuse undergone by millions of animals, year after year.

BIBLIOGRAPHY

- Albareda, S. *Reconciliarse con el planeta*. Pamplona: Eunsa, 2015.
- Broom, D. M. Animal welfare education: Development and prospects. *Journal of Veterinary Medical Education*, 32, 438-426, 2005.
- Carretero-Dios, H. & Pérez, C. Normas para el desarrollo y revisión de estudios. *International Journal of Clinical and Health Psychology*, 5(3), 521-551, 2005.
- Fernández-Manzanal, R., Rodríguez-Barreiro, L., & Carrasquer, J. Evaluation of Environmental Attitudes: Analysis and results of a Scale Applied to University Students. *Science Education*, 91, 988-1009, 2007.
- Furnham, A., & Pinder, A. Young people's attitudes to experimentation on animals. *The Psychologist*, 10, 444-448, 1990.
- Heleski, C. R., & Zanella, A. J. Animal science student attitudes to farm animal welfare. *Anthrozoös*, 19(1), 3-16, 2006.
- Herzog, H. A., Betchart, N. S., & Pittman, R. Gender, sex role identity and attitudes toward animals. *Anthrozoös*, 4(3), 184-191, 1991.
- Hills, A. M. Empathy and belief in the mental experience of animals. Reviews and Research Reports. *Anthrozoös*, 8, 132-142, 1995.

1 http://internacional.elpais.com/internacional/2014/09/03/actualidad/1409752554_809965.html

2 <http://www.vgt.at/projekte/tiu/index.php> Accessed on 14/05/2013.

- Horgan, R., & Gavinelli, A. The expanding role of animal welfare within EU legislation and beyond. *Livestock Science*, 103, 303-307, 2006.
- Kellert, S., & Berry, J. *Phase III: Knowledge, Affection and Basic Attitudes towards Animals in American Society*. Washington, DC: United States GPO, 1980.
- Knight, S., Vrij, A., Cherryman, J., & Nunkoosing, K. Attitudes towards animal use and animal mind. *Anthrozoös*, 17, 43-62, 2004.
- Knight, S., Vrij, A., Bard, K., & Brandon, D. Science versus human welfare? Understanding attitudes toward animal use. *Journal of Social Issues*, 65, 463-483, 2009.
- Marsden, W. E. Animal Welfare Issues in Geography and Environmental Education: Some British Historical Perspectives. *International Research in Geographical and Environmental Education*, 10(4), 392, 394-410, 2010.
- Mazas, B., Fernández-Manzanal, M. R., Zarza, F.J., & María, G. A. Development and Validation of a Scale to Assess Students' Attitude towards Animal Welfare. *International Journal of Science Education*, 35(11), 1775-1799, 2013.
- Miranda-de la Lama, G. C., Sepúlveda, W. S., Villarroel, M., & María, G. A. Attitudes of meat retailers to animal welfare in Spain. *Meat Science*, 95, 569-575, 2013.
- Paul, E. S., & Podberscek, A. L. Veterinary education and students' attitudes towards animal welfare. *Veterinary Record*, 146, 269-272, 2000.
- Peek, C. W., Bell, N. J., & Dunham, C. C. Gender, gender ideology, and animal rights advocacy. *Gender and Society*, 10, 464-478, 1996.
- Phillips, C. J. C., & McCullough, S. Student attitudes on animal sentience and use of animals in society. *Journal of Biological Education*, 40, 1-8, 2005.
- Phillips, C. J. C., Izmirlı, S., Aldavood, S. J., Alonso, M., Choe, B. I., Hanlon, A., Handziska, A., Illman, G., Keeling, L., Kennedy, M., Lee, G. H., Lund, V., Mejdell, C., Pelagic, V. R., & Rehn, T. An international comparison of female and male students' attitudes to the use of animals. *Animals*, 1, 7-26, 2011.
- Phillips, C. J. C., Izmirlı, S., Aldavood, S. J., Alonso, M., Choe, B. I., Hanlon, A., Handziska, A., Illmann, G., Keeling, L., Kennedy, M., Lee, G. H., Lund, V., Mejdell, C., Pelagic, V. R. y Rehn, T. Students' attitudes to animal welfare and rights in Europe and Asia. *Animal Welfare*, 21(1), 87-100, 2012.
- Plous, S. (1996). Attitudes toward the use of animals in psychological research and education. *Psychological Science*, 7, 352-358.
- Serpell, J. A. Factors influencing human attitudes towards animals and their welfare. *Animal Welfare*, 13, 145-151, 2004.
- Signal, T. D., & Taylor, N. Attitudes to animals in the animal protection community compared to a normative community sample. *Society and Animals*, 14(3) 265-274, 2006.
- Spector, P. E. *Summating Ratings Scale Construction: An Introduction*. London: Sage Publications, 1992.
- Taylor, N., & Signal, T. D. Empathy and attitudes to animals. *Anthrozoös*, 18, 18-26, 2005.
- Tyler Miller, G. *Living in Environment. An Introduction to Environmental Science*. United States: Wadsworth Publishing Company, 1992.
- Zelezny, L. C., & Schultz, P.W. Promoting environmentalism. *Journal of Social Issues*, 56(3), 365-578, 2000.

Received 23 -12-2015 /Approved 30-11-2016

La educación superior cubana. Logros y retos Cuban higher education. Achievement and challenges

CONSTANTINO FIDALGO BASTERRECHEA

Universidad de Camagüey. Carretera Circunvalación Norte km 5½, Camagüey 74650, República de Cuba, constantino.fidalgo@reduc.edu.cu

Resumen

Se brindan brevemente los antecedentes de la educación en Cuba, la situación que existía antes del triunfo de la revolución en 1959 y el desarrollo de la educación general. A continuación se brinda un análisis de la educación superior en el país partiendo de la fundación de la primera universidad cubana en 1728. Se hace una división del desarrollo de la misma en tres etapas o períodos comprendidos desde 1962-1975, un segundo período de 1975 hasta finales de la década del 90 del pasado siglo y una tercera etapa comprendida desde el año 2000 hasta el presente. Se brindan las cifras actuales que distinguen a la educación superior en Cuba, se exponen los nuevos retos o propósitos de la misma, así como las dificultades que se tienen en la actualidad.

Palabras clave: educación, educación superior, Cuba

Abstract

This is a brief account of education in Cuba beginning with the situation before the triumph of the revolution in 1959 and the subsequent development of general education. Then an analysis of higher education in the country is given, starting from the foundation of the first Cuban university in 1728. The development of this education after 1959 is divided into three periods from 1962-75, a second one from 1975 until the end of the last century and a third period from 2000 to the present time. Actual data that distinguish the higher education in Cuba and the new challenges or goals and difficulties at this moment are given.

Key words: education, higher education, Cuba.

INTRODUCCION

Cuba es muy reconocida por la calidad de su educación la cual es priorizada por el Gobierno Cubano. Cuba invierte en la educación el doble de su producto interno bruto, mas que muchos de sus vecinos. Los últimos años se han venido caracterizando por un desarrollo sustancial en su sistema educativo lo cual ha sido avalado por organizaciones como la UNESCO, con logros como la casi inexistencia de analfabetos en el país. (Education in Cuba)

El ideario pedagógico cubano surge a finales del siglo XVIII y siglo XIX con la aparición del pensamiento de: Félix Varela, José de la Luz y Caballero, José Martí Pérez, Enrique José Varona.

En el siglo XX aparecen nuevos educadores que continúan el desarrollo de este pensamiento destacándose entre ellos: Alfredo Ma. Aguayo, Diego González, Dulce Ma. Escalona, Ramiro Guerra y otros.

La época de la colonia y la etapa republicana iniciada en 1902 hasta 1958, poco hizo al desarrollo educacional del país, tanto es así que Fidel Castro en su alegato de autodefensa "La Historia me Absolverá" expresaba "... en Cuba no pasan de seis las Escuelas Técnicas y de Artes Industriales" "A las escuelitas públicas del campo los muchachos asisten descalzos, semidesnudos y desnutridos, menos de la mitad de los niños en edad escolar y muchas veces es el maestro quien tiene que adquirir con su sueldo el material necesario" (Castro, 1964).

Según el censo de 1953 en Cuba había

Analfabetos	26,3 %
Niños que van a la escuela	56%
Universidades	3
Escuelas de comercio y administración	11
Granjas escuelas	6
Escuelas de oficio	3- 4
Maestros sin trabajo	10000

En 1958 solo cinco años más tarde cuatro cifras reflejaban el estado deplorable en que se encontraba la educación:

Un millón de analfabetos absolutos
Más de un millón de semianalfabetos
600 mil niños sin escuelas
Diez mil maestros sin trabajo (Castro, 1975)

Con el triunfo de la revolución el 1ro. de enero de 1959 se inicia una nueva etapa para el país y en especial para la educación