@tic. revista d'innovació educativa
ISSN: 1989-3477
attic@uv.es
Universitat de València
España

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Outdoor academic debate as a tool to stimulate critical thinking and scientific orientation: a pilot experience
@tic. revista d'innovació educativa, núm. 21, 2018, Julio-Diciembre, pp. 67-74
Universitat de València
España

DOI: https://doi.org/10.7203/attic.21.13495

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revista d'innovació educativa
VNIVERSITAT DE VALÈNCIA

Otoño (Julio-Diciembre 2018) Número 21. Págs. 8

# Outdoor academic debate as a tool to stimulate critical thinking and scientific orientation: a pilot experience

Debate académico de puertas abiertas como herramienta para estimular el pensamiento crítico y la orientación científica: una experiencia piloto

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Fecha presentación: 03/12/2018 | Aceptación: 19/12/2018 |Publicación: 21/12/2018

***Resumen***
Se presenta una experiencia piloto realizada durante la primavera de 2018 en el Jardí Botànic de la Universitat de València. La experiencia reunió a 24 estudiantes de las titulaciones de Sociología, Educación Primaria y Psicología de la misma universidad (6 estudiantes de cada titulación), más 6 estudiantes de diferentes titulaciones académicas, incluyendo máster y doctorado. El objetivo principal del estudio piloto es analizar la percepción y la efectividad de un seminario de debate académico llevado a cabo al aire libre, y con la participación de alumnos de diferentes ámbitos académicos. Se organizó en tres sesiones de tres horas cada una, con una distribución preestablecida de roles entre moderadores y participantes. También se establecieron normas claras de funcionamiento. El debate se estructuró en varias partes, y tanto la duración de las sesiones como el tiempo asignado a cada intervención habían sido determinadas con antelación. El foco se centró en promover la confianza y el respeto mutuo entre participantes, y se estimuló a los participantes que adoptaran y mantuvieran diferentes posiciones y argumentos dialécticos. Al final, los estudiantes evaluaron la experiencia y tuvieron la oportunidad de explicar hasta qué punto les había resultado fructífera, en un ensayo individual, en el que destacaron especialmente dos aspectos positivos: el entorno exterior y la posibilidad de interactuar con estudiantes de otras carreras.

*Palabras clave:* debate; herramienta de aprendizaje; pensamiento crítico; interdisciplinariedad; educación innovadora y al aire libre.

***Resum***
Es presentar una experiència pilot feta durant la primavera de 2018 al Jardí Botànic de la Universitat de València. L'experiència aplegà 24 estudiants de les titulacions de Sociologia, Educació Primària i Psicologia de la mateixa universitat (6 estudiants de cada titulació), més 6 estudiants de diferents titulacions acadèmiques, incloent-hi màster i doctorat. L'objectiu principal de l'estudi pilot és analitzar la percepció i l'efectivitat d'un seminari de debat acadèmic dut a terme a l'aire lliure, i amb la participació d'alumnes de diferents àmbits acadèmics. S'organitzà en tres sessions de tres hores cadascuna, amb una distribució preestablerta de rols entre moderadors i participants. També es van establir normes clares de funcionament. El debat s'estructurà en diverses parts, i tant la duració de les sessions com el temps assignat a cada intervenció havien estat determinades amb antelació. El focus es va centrar en promoure la confiança i el respecte mutu entre participants, i s'estimulà els participants perquè adoptaren i mantingueren diferents posicions i arguments dialèctics. Al final, els estudiants van avaluar l'experiència i van tenir l'oportunitat d'explicar fins a quin punt els havia resultat fructífera, en un assaig individual, en què destacaren especialment dos aspectes positius: l'entorn exterior i la possibilitat d'interactuar amb estudiants d'altres carreres.

*Paraules clau:* debat; eina d'aprenentatge; pensament crític; interdisciplinarietat; educació innovadora i a l'aire lliure.

Mayoral García-Berlanga, O., Simó Noguera, C. X., Suay i Lerma, F. (2018). Outdoor academic debate as a tool to stimulate critical thinking and scientific orientation: a pilot experience. @tic revista d'innovació educativa, 21, 67-74.

*Abstract*

This paper aims to present a pilot experience conducted during the spring of 2018 in the Jardí Botànic (Botanic Garden) of the Universitat de València. The experience brought about 24 students from the degrees of Sociology, Primary School Education and Psychology in the same university (6 students from each degree), and 6 students from different academic backgrounds, including Master´s Degree students and one PhD student. The main goal of the pilot study is to analyze the perception and effectiveness of an academic debate seminar made outdoors and including students from different academic backgrounds. It was organized in three sessions of three hours each, with a pre-established distribution of roles between moderators and participants was pre-established. Clear rules of the functioning were also set up. The debate was structured in different parts, the duration of which had been previously established, as well as the time allocated to each intervention. Mutual trust and respect were also promoted and different dialectical positions and arguments were encouraged. At the end the students assessed the experience and had the opportunity to explain the extent to which the experience was fruitful in an individual essay, highlighting especially two positive aspects: the outdoor environment and the possibility to interact with students of other careers.

*Key Words:* debate; learning tool; critical thinking; interdisciplinarity; innovative and outdoor education.

## 1. Introduction

Debates are structured discussions about specific topics, with the purpose of presenting positions for and against, arguing and, finally, drawing conclusions (Blanco, 2013). The academic debate is considered a teaching and learning tool in the classroom.

Many authors have stated the capability of helping opening minds and promoting critical thinking (Budesheim and Lundquist, 2000; Camp and Schnader, 2010; Alén et al., 2015) and the power of in-class debates (Kennedy, 2009). Debates usually focus on the reasoning of controversial arguments. As opposite arguments need to be strong enough to resist the dialectal battle, participants must invest some effort in strengthening their positions. Hence, debates are also a good instrument to increase knowledge.

## 2. Why Academic Debates?

Although discussions and debates tend to be commonly considered as an important part of the academic life (Combs and Bourne, 1994; Bellon, 2000; Vo and Morris, 2006), our experience as university professors does not agree with that popular view. On the one side, lectures and classes do not generally facilitate scenarios for open debates, neither does the usual distribution of the space in the university classrooms. Despite the fact that many of the topics taught might be subjected to discussion and/or confrontation of opinions with the students, it has to be acknowledged that the fact that evaluation is an essential part of the courses does not exactly help students to freely disagree with their instructors. Even if, in most cases, that would not necessarily imply negative consequences for the students, it is easy to understand that they do not feel especially inclined to openly disagree with their instructor's statements. It must also be acknowledged that some instructors might not take kindly to a student openly expressing dissenting points of view, even if the opposite has been specifically stated. Quite often, dismissive comments or even attitudes from the instructors may act as punishing stimuli and lead to a reduced interest in engaging in open discussion on the students' side.

On the other side, it is not very frequent to see professors and staff members holding open debates about academic issues among them. Oftentimes, the 'academic courtesy' is, in practice, understood as avoiding to contradict your colleagues in public acts so as not to damage their prestige or moral authority. Moreover, debate between experts from different disciplines is very seldom available.

Even considering that several disciplines do share some of their objects of study (the human species, social life, education…), the amount of interdisciplinary activities does not tend to be very high. When produced, interdisciplinary activities usually adopt the form of lectures and training activities in which different specialists address the attendants at different times and don't allow a proper exchange of viewpoints, opinions or hypotheses among individuals of a similar academic status. This situation is very likely to facilitate narrow-minded points of view, which are often based exclusively in a specific field of a single discipline and do not consider many other possibly relevant contributions provided by other scientific disciplines.

Since no academic contexts are easily accessible to open discussion, debates among students tend to take the form of ideological discussions, which do not hold any of the good qualities that a formal, academic debate can provide. It has to be said that these ideological debates, in which the contenders rarely try to contribute facts or hypotheses but just struggle to impose their own visions are the most accessible models for young people. A quick look on the debates provided by the media would easily prove this point.

The benefits of a wholesome academic debate do not need to be stressed. Science is the most developed tool that the human species has been able to come up with in order to understand and to be able to intervene on reality. If there is a way to train people to be critical thinkers and try to reach their own conclusions, it probably has to go, at least to some extent, through the ability to contrast their own ideas with those of other people.

Academic debate, on top of that, should provide the added value of requiring that the ideas, arguments and explanations have to be evidence-based. Therefore, although possessing good oratory skills and being fast, clever and articulate are good qualities, they should never be enough to win an argument. An in-depth knowledge of the scientific literature on the topic, as well as of the methods that are suitable to study it is a most needed requisite for an academic debate. Science is based on demonstrable and reproducible data, and aims for measurable results through testing and analysis. It is based on facts, not opinions or preferences and the process of science is designed to challenge ideas through research. Although these very basic concepts are generally accepted among academics and students from the so-called «hard-science» disciplines such as Physics, Chemistry or Biology, among many others, it is debatable that they constitute a commonly accepted ground for scholars in other academic disciplines, especially in the

field of Humanities and Social Sciences. The risk of studying, accepting and sharing full bodies of theoretical knowledge which have not been derived from a serious and rigorous empirical research gets higher when the audience (the students) are not trained to challenge, question and subject to a thorough analysis the content that is offered to them in academic contexts.

Moreover, not just as scholars but also as citizens, their possible contributions would be significantly lessened if they would not have developed the necessary skills to hold a productive and respectful discussion that can be able to lead to some reasonable conclusions and/or agreements. As Lukianoff and Haidt (2018) point out in their book «The Coddling of the American Mind: How Good Intentions and Bad Ideas Are Setting Up a Generation for Failure»: "Teach debate and offer debate club. A great way for students to learn the skills of civil disagreement is by participating in structured, formal debates. It is especially important that students practice arguing for positions that oppose their own views. All students would benefit from learning debating techniques and participating in formal debates". In some university courses, as Political Science, it seems obvious that academic debate should be a part of the curriculum (Omelicheva, 2007).

## 3. Why outdoors?

Teaching outdoors has been established as an important didactic strategy (Rickinson et al. 2004; Glackin, 2016), and significative efforts have been directed towards encouraging and supporting teachers to take their students outside the classroom (Glackin, 2017). In this sense, many initiatives have been carried out to promote outdoor education, but mostly for preschool, primary or secondary school (Behrendt & Franklin, 2014), some of them promoted by the governments. For example, in England, the Council for Learning Outside the Classroom was initiated by the government (Department of Education and Skills, 2006).

Higher Education research has identified the importance of interdisciplinary, experiential, holistic pedagogy in developing literacy (Lugg, 2007). The emergence of outdoor pedagogy as an academic field of endeavour poses great possibilities for academics to promote interdisciplinary learning and teaching experiences.

This paper suggests that outdoor education may have something to offer in this regard and that direct experience in outdoor environments can facilitate connections and an opportunity to enhance debates, not always in relation to environmental education. Although we found no literature focusing specifically on outdoor debates, it seems clear that outdoor spaces involve socio-psychological states, processes and variables such as perceived freedom, engagement and motivation (Bernman, 2005; Wattchow & Brown, 2011) that may help to the development of a debate and that are worth exploring.

## 4. Main purposes

Debating is a skill, and it can (and maybe should) become a habit in order to provoke a certain degree of transference into other social contexts, including, -hopefully- the media. Since, as it has been stated, classes and lectures are not usually suitable environments for the academic debate, it would be advisable for the universities to provide specific resources aimed to stimulate, train and develop debating habits and skills.

An important difference between ideological and science-oriented debates is the ability to reach conclusions, not just through agreement and consensus but also through the proper scientific tools of stating hypotheses and searching for evidence that could prove them false or get them provisionally accepted. To that effect, a bibliographical search may be an excellent tool and may provide a solid basis to start and direct a discussion whenever all contenders have had the opportunity to examine it beforehand.

The next and equally crucial point to address is the debating style. As previously stated, the available models are not particularly worth imitating. Academic debate cannot be a matter of a rightful expression of opinions and should specifically avoid falling into the numerous fallacies that tend to populate ideological discussions of all sorts (see Pirie 2006). Academic debate should not be about winning or losing but about understanding and finding the truth whenever this is possible. As with many other domains of human behaviour, rules and norms come in handy. Moreover, the context, as well as other environmental cues, can be very influential when it comes to regulate a debate in order to ensure that it keeps within the lines of civility and honesty. The formal contexts can be really helpful in order to enforce these features:

Classrooms, round-tables or other aspects such as the clothes that participants are wearing or the formulas that are encouraged to employ are known to modulate the intensity of the emotions that get to be expressed, as Van Dijk (2004) has stated regarding parliamentary debates. On those lines, the presence of one or several professors playing the role of distributed moderation can be considered as a good predictor of success, as it has been examined in online forums (Lampe et al. 2014).

A most needed capacity and/or attitude is the one related to challenge your own opinions and points of view. While heated ideological arguments might benefit from a solid conviction and a relentless attachment to your own posture in order to emerge (or be seen) as a winner, scientific debates would get better and more productive when the opposite is true. Although a debate is not equivalent to a study or an experiment, the general purpose of aiming to prove false your own hypothesis can be seen as a golden rule. In our case, participants were encouraged to look for possible and effective counter-arguments for their own previous positions about the debated topic.

The main purpose of this pilot study was to analyze the perception and effectiveness of an academic debate seminar conduced outdoors (in a Botanic Garden) and including students from different academic backgrounds. Likewise, this article provides an academic sequence developed for a specific debate that has been successfully developed, specifying the characteristics of each of the phases, in order to serve as a basis for other teachers who want to apply or adapt it to their circumstances and students.

## 5. How was it done?

To carry out a debate it is necessary to have a pre-established format where roles are specified (moderator and participants), duration and time allocated to each participation. A climate of mutual trust and respect is also essential in order to encourage different positions and arguments derived from a research work, a reading, and an analysis. A minimal in-depth knowledge of the subject in order to achieve a real discussion is also

necessary (Blanco, 2013).

In this pilot study, a sample of twenty-four students from the Degrees in Sociology, Primary School Education and Psychology at the Universitat de València was selected. Specifically, six students from each of these Degrees were chosen and priority was accorded to those with a clear predisposition to participate in respectful dialogue, willingness to question their own opinions and beliefs and with argumentative capacity as well as demonstrated academic level to ensure the understanding of scientific papers written in English. The sample was enriched with six students from different academic backgrounds, including Master´s Degree students and a PhD student. The ages ranged from 19 to 31 years old. The organization and development of the debate sessions were prepared and carried out by three professors of the Universitat de València, one from the field of Sociology, another from the didactics of Biology and Natural Sciences and another from the field of Biopsychology.

The academic debate seminar was organized in three sessions of three hours each, in consecutive weeks. The methodology of each session was similar and guided by questions related to the articles that had been read during the previous week. The debates were held in the Jardí Botànic (Botanic Garden) of the Universitat de València, alternating sessions of the whole group inside a classroom with small-group sessions developed in the garden itself. The students were free to choose the location in the garden that they liked best to develop these outdoor sessions.

The nature of the different groupings (homogeneous in the first session and heterogeneous after the second) was intended to provide a relaxed atmosphere in which participants were progressively moving from more homogeneous to more heterogeneous groups. Initially they were grouped by careers so that, even without knowing each other, they shared a common framework. As the small debates were happening and the attendees were sharing and discussing more aspects on the topic of discussion, the small groups were encouraged to include students from all three careers.

The topic to focus in was a hot issue: 'Sexual dimorphism in human behavior', which included highly sensitive aspects such as the degree of biological influence on the different career choices of men and women, the sexual-activity preferences and reproductive styles of both sexes, monogamous vs polygamous tendencies, and so on. This was intended to ensure the interest on the part of all attendees, regardless of the academic context of origin. The bibliography selected included scientific papers as well as dissemination and opinion articles. For the first two sessions, the papers to read were established by the coordinators and for the last session, each small group decided which articles they were willing to read from the pool of papers uploaded into the seminar's virtual cloud.

The role of the coordinators was to select the articles to be studied, to lead the big group meetings and to organize the small group debates. An initial email was sent to all the students explaining how the seminar would work-out. The following rules were established:

1. The educational benefits of the course will depend on your doing the readings and viewings on time, so that you can contribute to the seminar discussions. If you don't read the assignments, you won't learn much; if you do read them attentively, you'll learn a lot. You will need to commit about three hours a week to doing the readings and viewings.

2. We expect all of each week's required readings to be completed well before the seminar's session, so that you have time to digest them, think about them, compare and contrast them, and prepare intelligent comments and questions about them. Last-minute reading will not result in good comprehension or good in-class discussion.

3. For most of each session, the professors will be moderating discussions and debates among the participants. Therefore, we expect regular attendance, knowledge of the assigned readings, active participation and intellectual engagement, as well as thoughtful questions and commentaries about the readings.

4. Before each session, you should write down one good discussion point about each assigned reading. Each discussion point could be a thoughtful comment, question, critique, or comparison to other readings, theories, or findings. It should not just summarize the reading's argument, but it should show that you have understood the reading, and developed your own thoughts in response. It should not just be a personal reaction or anecdote vaguely related to the reading, but it could relate the reading's ideas to current events, controversies, or real-life issue. The best discussion points are both funny and intellectually serious.

5. If you haven't understood the reading well enough to prepare a discussion point, you should be ready to say what specific theories, concepts, or findings you found most confusing, and why. If you didn't understand something after reading it carefully, other students probably didn't either, and we should discuss and clarify it.

6. You should write out these discussion points before each class, expressed clearly and concisely enough so that you can read them aloud when required.

The first day, students were asked to establish their position in relation to the causes of the observable sexual dimorphism in human behavior: is it biologically based or are social factors responsible for it? To that effect, the students were asked to team up in groups formed by students of the same Degree. A one-hour discussion of the big group was followed by another hour of outdoor debates of these homogeneous groups. The session ended with a big group debate in which each small group explained their basic conclusions and rated their common position in a scale from 0 (only Biology matters) to 10 (only social factors matter) as a way to easily visualize the different positions.

The second day a short big group meeting lead to longer heterogeneous group debates with students coming from different academic backgrounds teaming up in groups of 5-6 members. A final short big group meeting was carried out to share impressions from different small groups.

The third and last day began also with a short big group meeting where each group explained what papers had been selected. Once the seminar was concluded, a questionnaire was sent to the students, specially designed to gather their opinions about the functioning of the debate seminar and the results (see annex). The questionnaire was completed online by the students

individually and anonymously.

## 6. Outcomes

Questionnaire

From the 24 students enrolled in the seminar, six students dropped out at least one of the sessions because they were in period of exams, and a total of 18 attended all the sessions and were able to develop the complete teaching sequence. Of these, 13 (72%) answered freely to the questionnaires. The main conclusions -after conducting a qualitative analysis- regarding the timing, methodology, teacher's role, outdoor emplacement of the seminar, topic of the debate, etc. are the following.

Regarding the extension of the seminar, most of the attendants considered it sufficient, although considering that one more session would have been also a good option. The methodology was well received, considering that the best way to discuss the issues is by preparing individually first the articles and then sharing discussion in small groups and finally in the whole group. Having a database where sharing articles and reading all the same articles the first sessions was also highlighted. Attendants preferred working in small groups and some suggested that each of the teachers could have a more active guide role in the small group in future editions. Some of the opinions can be summarized in these statements: "The methodology has been favorable to generate discussion during the sessions"; "I found it very interesting, it encouraged interdisciplinary work and critical thinking".

Focusing on the bibliography, the amount of readings and the focus given were considered appropriate. About the selection criteria some students stated that "it is interesting to know both the biological and the social position on the topic of sexual dimorphism". However, other students stated that they would have appreciated more sociological papers, focusing as well on theories of education.

The role of teachers as guides and facilitators of the process was perceived as correct and positive, especially when they were giving tips to avoid fallacies and the drift towards an ideological debate: "personally, it has helped me to analyze the origin of some of the arguments that I expose". Attendants highlighted the enriching fact that, at times, teachers also had discrepancies and 'mini-debates' were generated among them.

When asked about the perception of the academic level of the other participants in the debate, students insisted in the high level of knowledge they perceived in their debate-mates, related to their respective disciplines. This fact was appreciated and considered very useful as it enabled including different visions on the same subject. Academic diversity was one of the most appreciated elements of the seminar: "I think it has been very enriching because each one provided very different points of view"; "It has seemed to me an enriching experience as it helps us to get out of the dynamics and opinions that we usually see within the same career". On the other hand, a lack of biological basic knowledge was stated and perceived in part of the attendants. This imbalance could be addressed, according to the participants, by means of including some first readings addressing the theoretical points necessary to understand the content of the debate.

One of the important elements that we had included in the methodology was to make most of the debates in the outdoors. All respondents agreed that the choice of the Jardí Botànic (Botanic Garden) for the debate was excellent, as it encouraged debate in a relaxed atmosphere clearly differentiated from the usual classroom environment. E.g.: "The site has been spectacular. A very quiet place where you can work in different environments, such as in the same garden. Working outside the classroom is always a good alternative." Some of the students proposed to make all the sections of the debate outdoors: "it would be interesting to make also the big-group discussion outdoor in the garden".

Attendants insisted in the benefits of the proposal in relation to the possibility to approach the topic of sexual dimorphism in human behaviour from an open perspective which promoted the integration of other logics that were not their own. Issues that can be improved in future editions include time-management of big-group sessions as attendants lacked some time to put issues in common and to approach the topic that other groups have dealt with as well as to reach conclusions in common.

We can summarize the opinions of the attendants with this statement from one of them: "What I liked most of the seminar, in addition to the interdisciplinarity, was that we have been urged to critical thinking and to question and contrast any data or theory before considering it as valid. On the other hand, I think that the election of the subject of the debate was very successful, since it is an issue of increasing interest today".

## 7. Final Essay

Once the seminar concluded, the students were asked to write an essay in which they could develop their thoughts about this academic experience, the topic discussed and the functioning. This essay intended to focus on stressing the extent to which the experience was fruitful for them and it was structured to know 1) their initial personal viewpoint and orientation about the topic discussed, 2) their current position after having completed it; and 3) the main motives for having maintained of modified the initial one.

A total of 15 students delivered the final essays, in which, some students stated that their initial viewpoint of the topic was not well-informed enough. Thanks to the interdisciplinary discussion, they said, they took much profit of the orientations received from students coming of other scientific fields, in order to build a more complex and complete idea about the topic. Some of them acknowledged that the lack of information had led them to adhere to a biased orientation.

Other students declared that they considered to have possessed a strong judgement on the topic initially, but that along the seminar they realized that some of their statements were not as solid as to hold against some opposite arguments. Although they tried to keep their initial positions, they were thankful for the opportunities received to grow their knowledge at the end.

All students agree on the point that listening arguments from other perspectives not only enhanced their knowledge but it also provided further open-mindedness and flexibility, which were seen as necessary tools to access a new or/and more complex knowledge.

## 8. Conclusions and future directions

It is important to insist on the need to be alert, since some active experiences, as generic discussions, are often lively but not always productive learning experiences (we could call these active but non-learning

experiences). It is not always easy to avoid meandering and irrelevant to the topic discussions. In this sense, the design of the task is basic in order to encourage a knowledge building process by using the subject matter in a purposeful way. In our experience, this was made by including questions and problems that matter (with significance beyond the academic context).

Another important issue was the structure of the interaction that ensures that students will not only say something they know. In our sexual dimorphism debate, this was avoided by giving articles to read before each session and by making them adopt a position to encourage discussions amongst different viewpoints.

Of course, debates and other active-learning methodologies don´t fit in all kind of students and are not the panacea for teaching and learning problems. Recently Lawrence (2015) focused on the experience of introverted reflective learners in a world of extroverts. This kind of research reminds us on the importance of maintaining a balance in the different methodologies used in our classes.

As possible improvements for future editions, it is worth highlighting the extension of sessions in outdoor environments. Taking the academic debate outdoor was proved to be a positive aspect that promoted engagement and relaxed environment for discussions. Students also highlighted their interest on focusing towards topics that serve in some way in particular for each degree; for example, future teachers (three pre-service primary teachers and two secondary teachers) suggested including a practical point of view, helping them, thus, expand that small part of their studies in relation to the topic.

The success of this first edition of the interdisciplinary academic debate raised in this paper encourages us to work on the preparation of other debates, widening the scope with more topics and disciplines and even increasing the 'distance' between disciplines. Another possible improvement for future debates- with very important implications for the education of young people- would shift towards using English as a Medium of Instruction (EMI), in this case, English as a Medium of Interaction. EMI is increasingly being used in universities, secondary schools and even primary schools.

In summary, we think that the proposal included in this paper offers an approach to the three domains of student learning: cognitive domain by developing critical thinking, affective domain by generating interest in the subject matter and the domain of skills and abilities by improving communication and teamwork skills.

## 9. References

Alén, E., Domínguez, T. and de Carlos, P. (2015). University students' perceptions of the use of academic debates as a teaching methodology, Journal of Hospitality, Leisure, Sport & Tourism Education, 16, 15-21. https://doi.org/10.1016/j.jhlste.2014.11.001

Behrendt, M. and Franklin, T. (2014). A review of research on school field trips and their value in education. International Journal of Environmental & Science Education, 9, 235–245. https://doi.org/10.12973/ijese.2014.213a

Bellon, J. (2000). A Research-Based Justification for Debate Across the Curriculum, Argumentation and Advocacy, 36(3), 161-175. https://doi.org/10.1080/00028533.2000.11951646

Berman, D. S. and Davis-Berman, J. (2005). Positive psychology and outdoor education, Journal of Experiential Education, 28(1), 17-24. https://doi.org/10.1177/105382590502800104

Budesheim, T. and Lundquist, A. (2000). Consider the opposite: opening minds through in-class debates on course-related controversies. Teaching of Psychology, 6, 106-110.

Blanco, R. (2013). Debate como técnica de evaluación del desempeño en educación superior. Available from: http://roxanablancovillarte.blogspot.com.es/2013/11/v-behaviorurldefaultvmlo.html.

Camp, J.M. and Schnader, A.L. (2010). Using Debate to Enhance Critical Thinking in the Accounting Classroom: The Sarbanes-Oxley Act and U.S. Tax Policy. Issues in Accounting Education, 25, 655-675. https://doi.org/10.2308/iace.2010.25.4.655

Combs, H. W. and Bourne, S. G. (1994). The Renaissance of Educational Debate: Results of a Five-Year Study of the Use of Debate in Business Education, Journal on Excellence in College Teaching, 5(1), 57-67.

Department of Education and Skills (2006). Learning outside the Classroom Manifesto. London: DfES.

Glackin, M. (2016). 'Risky fun' or 'Authentic science'? How teachers' beliefs influence their practice during a professional development programme on outdoor learning, International Journal of Science Education, 38(3), 409-433, https://doi.org/10.1080/09500693.2016.1145368

Glackin, M. (2017). 'Control must be maintained': exploring teachers' pedagogical practice outside the classroom, British Journal of Sociology of Education, 39 (1). https://doi.org/10.1080/01425692.2017.1304204

Kennedy, R.R. (2009). The power of in-class debates, Active Learning in Higher Education, 10, 225-236. https://doi.org/10.1177/1469787409343186

Lampe, C., Zube, P., Lee, J., Park, C. H., and Johnston, E. (2014). Crowdsourcing civility: A natural experiment examining the effects of distributed moderation in online forums. Government Information Quarterly, 31(2), 317-326. https://doi.org/10.1016/j.giq.2013.11.005

Lawrence, W. K. (2015). Learning and Personality: The Experience of Introverted Reflective Learners in a World of Extroverts. Cambridge Scholars Publishing

Lukianoff, G. and Haidt, J. (2018). The Coddling of the American Mind: How Good Intentions and Bad Ideas Are Setting Up a Generation for Failure. Penguin Press, USA: New York.

Lugg, A. (2007). Developing sustainability-literate citizens through outdoor learning: possibilities for outdoor education in Higher Education, Journal of Adventure Education & Outdoor Learning, 7(2), 97-112. https://doi.org/10.1080/14729670701609456

Omelicheva, M. Y. (2007). Resolved: Academic Debate Should Be a Part of Political Science Curricula, Journal of Political Science Education, 3(2), 161-175. https://doi.org/10.1080/15512160701338320

Pirie, M. (2006). How to Win Every Argument: The Use and Abuse of Logic. Bloomsbury, UK: London.

Rickinson, M., J. Dillon, K. Teamey, M. Morris, M. Y. Choi, D. Sanders and Benefield, P. (2004). A Review of Research on Outdoor Learning. Shrewsbury: Field Studies Council.

Van Dijk, T. A. (2004). Text and context of parliamentary debates. Cross-cultural perspectives on parliamentary discourse, 339, 216-17. https://doi.org/10.1075/dapsac.10.10dij

Vo, H.X. and Morris, R.L. (2006). Debate as a Tool in Teaching Economics: Rationale, Technique, and Some Evidence, Journal of Education for Business, 81(6), 315-320. https://doi.org/10.3200/JOEB.81.6.315-320

Wattchow, B. and Brown, M. (2011). A pedagogy of place: Outdoor education for a changing world. Monash University Publishing.

| Cita recomendada de este artículo

Mayoral García-Berlanga, O., Simó Noguera, C. X., Suay i Lerma, F. (2018). Outdoor academic debate as a tool to stimulate critical thinking and scientific orientation: a pilot experience. @tic revista d'innovació educativa, 21, 67-74. https://doi.org/10.7203/attic.21.13495

## Annex I: Questionnaire

Academic Debate seminar on Sexual dimorphism in human behavior

Jardí Botànic (Botanic Garden) of the Universitat de València, May 2nd, 10th and 17th, 2018

We would like to know your opinion on the following aspects of the seminar 'Sexual Dimorphism in human behavior'. Both the reviews and the positive comments will help us improve future editions, so we will appreciate the utmost sincerity.

1. About the extension of the seminar (too short / sufficient / too long). Rate the time spent
2. What do you think about the methodology used during the debate?
3. What is your opinion about the selected bibliography?
4. What do you think about the teacher´s role during the seminar?
5. How do you value the level of the participants?
6. What do you think about chosen bucket (Jardí Botànic (Botanic Garden) of the Universitat de València)
7. What do you think about the timetable and seminar hours?
8. What opinion do you have about the participation of people from different faculties?
9. Tell us what has been the best and the worst of the seminar
10. Could you suggest other topics that you find interesting for future editions of the academic debate seminar?
11. Would you like to make another comment?