UNIVERSIDAD
COMPLUTENSE
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Proyecto de Innovación

Convocatoria 2017/2018

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Uso del debate formal como herramienta de innovación docente para el desarrollo temprano de las habilidades de comunicación y el análisis crítico de los estudiantes de Ciencias de la Salud

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1. Objetivos propuestos en la presentación del proyecto

El presente Proyecto de Innovación se ha encuadrado dentro de la línea de actuación "Nuevas metodologías e innovación en enseñanza presencial".

El aprendizaje basado en problemas (ABP) es una metodología centrada en el propio proceso de aprendizaje, es decir, en la investigación y reflexión que sigue el alumnado para llegar a una solución ante un problema planteado por el profesor. Generalmente, dentro del proceso educativo, el docente explica una parte de la materia y, seguidamente, propone a los alumnos una actividad de aplicación de dichos contenidos. A diferencia de lo anterior, el ABP se plantea como medio para que los estudiantes adquieran esos conocimientos y los apliquen para solucionar un problema real o ficticio, sin que el docente utilice la lección magistral u otro método para transmitir ese temario. Sin embargo, para que esta metodología sea efectiva se requiere un diseño que en ocasiones puede ser difícil de conseguir, además de un profesorado bien entrenado. En este sentido, encontrar otras estrategias que se centren en la participación activa de los estudiantes y se adhieran a los principios del aprendizaje a lo largo de la vida, pero que requieran un nivel de formación o experiencia menor, podría proporcionar alternativas para trabajar y conseguir con éxito la misma adquisición de competencias generales y transversales, lo que sería además especialmente útil para el profesorado que se encuentre en etapas iniciales de la carrera docente. Así, una metodología que incorpora la teoría del aprendizaje a lo largo de la vida junto con la participación activa del estudiantado y que presenta la ventaja de ser menos compleja que el ABP estructurado es el formato de debate instruccional (Hanna *et al.* Am J Pharm Educ, 2014). De hecho, esta herramienta docente es actualmente una forma aceptada de método docente en diversas escuelas profesionales y facultades de Ciencias de la Salud de otros países, habiéndose descrito experiencias de éxito desde hace tiempo (Moody-Corbett., Adv Physiol Educ, 1996), aunque su utilización en nuestro entorno y en el ámbito concreto de las Ciencias Biomédicas es bastante limitada.

Idealmente, la utilización del debate como método innovador de enseñanza/aprendizaje debe enfocarse a desarrollar la capacidad de razonamiento y la comunicación lógica del estudiantado. Así, un debate bien diseñado debe requerir que el estudiante piense, se documente, lea y escriba críticamente, sintetizando y exponiendo posteriormente ante sus compañeros y profesores conceptos complejos de modo coherente, bien investigados y apoyados por la literatura científica. En relación a esto, hay muchas formas de estrategias de debate, como el debate informal, también conocido como debate expositivo, en donde se pide al alumnado que venga preparado para discutir algún tema específico en la siguiente clase. No obstante, existe otro enfoque, el del debate formal, que ofrece mejores resultados a medio y largo plazo e implica tomar un tema controvertido, enmarcarlo dentro de una declaración resolutiva o afirmación (por ejemplo, hacer una propuesta o una recomendación sobre dicho tema) y requerir que un grupo de estudiantes se sitúe a favor y defienda la afirmación y que otro grupo argumente en contra de

la misma, refutándola. A los estudiantes se les pide que presenten sus argumentos en un formato preestablecido y trabajado anteriormente bajo la supervisión del profesorado implicado, generalmente alternando punto y contrapunto, en un tiempo también preestablecido que suele ser cronometrado por el facilitador que actúa como moderador (International Debate Education Association [www.idebate.org]. Consultado: 28/06/2018). Por otro lado, las carencias en habilidades de comunicación y gestión emocional en las profesiones sanitarias son una realidad constatada. De hecho, los profesionales de la salud aducen que no han tenido aprendizaje o entrenamiento para el contexto en el que desempeñan su labor, o que este ha sido insuficiente.

El presente proyecto ha pretendido desarrollar tempranamente y reforzar las habilidades de comunicación del estudiantado participante, fomentando a su vez su análisis crítico, en respuesta a la demanda profesional básico-clínica y social de tener futuros facultativos mejor formados en este ámbito. Además, la actividad propuesta mediante el uso de una herramienta innovadora en el ámbito de la enseñanza universitaria en Ciencias de la Salud como es el debate formal, se eligió para fomentar también el desarrollo de competencias transversales o generales, que forman parte del currículo de la mayoría de los nuevos Grados relacionados con las Ciencias Biomédicas y de la Salud desarrollados en el marco del Espacio Europeo de Educación Superior, puesto que estas competencias son de carácter interdisciplinar y básico y, por tanto, deberían desarrollarse en todas las ramas del conocimiento, pues son en realidad un reflejo de algunas de las Competencias Clave fijadas en 2006 por la Comisión Europea. Asimismo, otro de los objetivos generales fue que la propuesta fuera claramente de aplicación en ramas del conocimiento biomédico variadas, ya que desde su origen esta actividad docente innovadora se ideó y fue elaborada por profesorado de distintas áreas de conocimiento relacionadas con las Ciencias de la Salud (Bioquímica y Biología Molecular, Cirugía, Farmacología, Fisiología).

2. Objetivos alcanzados

En un sentido amplio, el principal objetivo alcanzado ha sido poner en práctica una actuación innovadora como la que constituye el debate formal para fomentar la participación activa del estudiantado en la construcción del conocimiento, además de desarrollar estrategias didácticas para su aprendizaje autónomo y diseñar procesos activos de adquisición de competencias y capacidades para su desempeño profesional. Así, el proyecto se ha centrado en desarrollar el razonamiento crítico y autocrítico del alumnado y su capacidad de adaptarse a una situación tan novedosa como la que propone el debate formal, en este caso de tipo de Karl-Popper. Para ello, los participantes debieron aprender a gestionar previamente las fuentes elegidas para la elaboración del argumentario a favor o en contra de la afirmación elegida o asignada (bases de datos, repositorios, artículos, monografías, etc.), el cual tenía que seguir los principios de rigor y calidad científicos, incorporando a su vez los principios éticos que rigen la investigación científica y la práctica profesional. Por último, se abordó la capacidad de trabajo tanto autónomo como en equipo con el fin de progresar en habilidades para el trabajo en grupos multidisciplinares, además de adquirir capacidad de toma de decisiones y mostrar creatividad, iniciativa y espíritu emprendedor.

En un sentido más estricto circunscrito a las competencias que los estudiantes de Ciencias de la Salud deben adquirir durante sus estudios universitarios pero que los egresados consideran que deberían abordarse con mayor profundidad y dedicarles un tiempo mayor, la actividad docente innovadora propuesta pretendió abordar y mejorar los siguientes aspectos que también pueden considerarse como objetivos alcanzados:

1. Comunicarse de modo efectivo y claro, tanto de forma oral como escrita, con los pacientes, los familiares, los medios de comunicación y otros profesionales.
2. Establecer una buena comunicación interpersonal que capacite para dirigirse con eficiencia y empatía a los pacientes, a los familiares, medios de comunicación y otros profesionales.
3. Redactar y comunicar registros biomédicos de forma comprensible a terceros.
4. Conocer, valorar críticamente y saber utilizar las fuentes de información clínica y biomédica para obtener, organizar, interpretar y comunicar la información científica y sanitaria.
5. Tener en la futura actividad profesional un punto de vista crítico, creativo, con escepticismo constructivo y orientado a la investigación y al método científico.
6. Comprender la importancia y las limitaciones del pensamiento científico en el estudio de los diversos campos que componen las Ciencias de la Salud.

Con el fin de evaluar si los objetivos mencionados anteriormente se alcanzaron de manera satisfactoria siguiendo el plan de trabajo proyectado, se

elaboraron encuestas diseñadas para analizar diversos aspectos de la experiencia de aprendizaje del alumnado durante el proceso de desarrollo del proyecto, pretendiendo así evaluar las percepciones del estudiantado sobre la mejora de sus competencias, en relación a las habilidades de comunicación y el análisis crítico de los temas de debate seleccionados, como resultado de la participación en el mismo. En este sentido, el equipo solicitante ya contaba con experiencia en relación a la medición y evaluación de indicadores de impacto, gracias a los resultados obtenidos en el PIMCD concedido por la UCM en el curso 2012-2013 titulado "Incorporación de estrategias e instrumentos innovadores de evaluación entre pares a través del servicio GoogleDocs ofrecido por para.TI@UCM". Se incidió, por tanto, en saber si el hecho de introducir al estudiantdo participante en la dinámica del debate formal y que este expusiera sus ideas y conocimientos ante una audiencia específica les ayudó a aumentar su formación y experiencia en este tipo de habilidades. Las encuestas se centraron en preguntar sobre el grado de consecución de las competencias generales y transversales propias y específicas de la titulación. El alumnado a cada pregunta tuvo que dar una calificación de 0 “estoy muy en desacuerdo con la afirmación” a 3 “estoy muy de acuerdo con la afirmación”. Por otro lado, se incluyeron cuestiones genéricas con el objetivo de tener una opinión general del alumnado sobre la actividad. La calificación de estas últimas cuestiones siguió las mismas características que la realizada sobre las competencias generales y transversales específicas. Por último, se incluyó una sección de carácter cualitativo en la evaluación. En este caso, se pidió a los participantes que respondieran a preguntas abiertas acerca de las ventajas y beneficios de su participación en el proyecto, así como que mencionaran aspectos mejorables o negativos de la experiencia. En este caso, los estudiantes pudieron responder con sus propias palabras y libremente sobre cuestiones que no estaban incluidas en la parte cuantitativa de la encuesta.

En términos generales, el análisis de los datos mostró que los objetivos del proyecto se habían cumplido, pues la mayoría de los estudiantes consideraron que aumentaron su capacidad de análisis, síntesis y habilidades organizativas después de la actividad. También opinaron que mejoraron sus habilidades de comunicación oral y escrita, así como sus capacidades para resolver problemas y tomar decisiones. Además, consideraron que la preparación de los debates los capacitó y concienció para encontrar y usar fuentes de información de calidad. En este sentido, desarrollaron una actitud crítica, científica y orientada hacia la investigación ya que uno de los objetivos de las sesiones de debate propiamente dichas era refutar las afirmaciones y alegatos del grupo oponente a través de pruebas y argumentos científicos. La mayoría de los estudiantes también reconoció que su participación en la actividad los ayudó a mejorar su capacidad para trabajar en equipos interdisciplinares, además de desarrollar y mejorar sus habilidades en cuanto a las relaciones interpersonales. Asimismo, les proporcionó herramientas para aprender de forma autónoma y adaptarse a situaciones nuevas, así como para aumentar su creatividad y conocimientos sobre temas de Ciencias de la Salud (Paredes *et al.* Proceedings of INTED2018 Conference 7410-7414, 2018; Paredes *et al.* Proceedings of INTED2018 Conference 7415-7419, 2018).

3. Metodología empleada en el proyecto

En primer lugar, se enseñó al alumnado las pautas necesarias que debían seguir para poder defender afirmaciones con éxito en el contexto del debate formal, familiarizándolo con las técnicas y normas empleadas en el mismo. A continuación, se hizo la selección de temas, que deberían ser propuestos por el propio alumnado al profesorado, pues es sabido que el nivel de motivación e implicación se incrementa significativamente cuando el alumnado debe investigar y defender, o refutar, ideas que le son interesantes o le despiertan curiosidad. Algunos ejemplos de afirmaciones objeto de debate fueron los siguientes: “Se debe permitir el uso de anabolizantes dentro y fuera del ámbito deportivo” o “la acupuntura es una técnica médica que soluciona problemas médicos que no hace la Medicina convencional". En cuanto al proceso de debate propiamente dicho, entre los múltiples tipos de debate formal existentes, se utilizó el denominado debate de Karl-Popper, pues se centra en proposiciones relevantes que suelen ser de por sí a menudo profundamente divisivas, como las mencionadas anteriormente, lo que enfatiza el desarrollo de habilidades de pensamiento crítico y tolerancia para diferentes puntos de vista. Así, cada equipo participante en una sesión de debate tuvo que investigar ambos lados de cada postura, intentando identificar los puntos fuertes y débiles propios y de la postura contraria, lo que aseguró en consecuencia una argumentación a nivel alto, tal como se espera en una actividad de carácter universitario. De este modo, cada equipo tuvo la oportunidad de ofrecer argumentos y hacer preguntas directas al equipo contrario. Una vez finalizada la sesión, las personas que ejercieron de facilitadores-moderadores hicieron comentarios constructivos, comentando fallas lógicas, evidencia insuficiente o argumentos que los participantes podían haber pasado por alto. En esta última función tuvo un papel destacado el profesor solicitante de la Universidad de Alcalá, pues para aumentar la seriedad y concentración en el proceso se recomienda la introducción de una persona que no haya tenido un contacto estrecho con los oradores, evitando por tanto la tentación de caer en la familiaridad o de no mantener una atención alta durante todo el evento.

Las características distintivas de este formato con respecto a otros tipos de debate proporcionan además ventajas desde el punto de vista de la formación, en el sentido de que hay un denominado “tiempo de preparación”, en donde los participantes tuvieron que prepararse antes del discurso, y el “contrainterrogatorio”, cuando hicieron preguntas a sus oponentes. Asimismo, al hacer este formato hincapié en el trabajo en equipo, fue un buen modelo para personas principiantes que se inician en este tipo de actividades, porque cada orador hablaba sólo una vez, no pudiendo intervenir hasta que el resto se había manifestado, y los miembros del equipo necesitaban comunicarse entre sí durante el tiempo de preparación designado. Igualmente, se fomentó el trabajo cooperativo y colaborativo entre los participantes, intentando que los grupos que participaron a favor de una afirmación concreta en una sesión determinada, lo hicieran en contra en el caso de otra. Finalmente el alumnado oyente debió calificar razonadamente a los participantes, lo que a su vez sirvió al profesorado para calificar a la audiencia.

4. Recursos humanos

El grupo de profesorado participante estuvo compuesto por 8 integrantes pertenecientes a Departamentos diferentes de la Facultad de Medicina de la UCM, específicamente a los de Bioquímica y Biología Molecular III (Dras. Elena Vara Ameigeiras, Cruz García Martín, Lisa Rancan y Dr. José Antonio Zueco Alegre), Cirugía (Dr. Carlos Mª Simón Adiego), Farmacología (Dr. Ignacio Garutti Martínez) y Fisiología (Dres. Jesús Ángel Fernández-Tresguerres Hernández y Sergio Damián Paredes Royano, que actuó como investigador principal y coordinador del proyecto), con el fin de englobar estudiantado de al menos una parte representativa de cada una de las áreas principales de conocimiento a las que estaban adscritos los integrantes del equipo solicitante. Además, participó un noveno profesor de la Universidad de Alcalá, el Dr. Juan Carlos García Pérez, lo que proporcionó al equipo de trabajo más información a la hora de abordar el proyecto en situaciones diversas en cuanto a contextos educativos equivalentes pero no idénticos. Asimismo, considerando que en algunas ocasiones durante el desarrollo del proyecto se podía hacer necesaria la intervención del profesorado al producirse desacuerdos entre los estudiantes o no tomar estos la iniciativa necesaria, lo que incluso podría llegar a cohibirlos, pues quizás se verían obligados a elegir determinados temas que en realidad no les convencían totalmente, se propuso que uno de los alumnos, Alberto Alonso González, fuera también solicitante del proyecto, otorgándole un papel muy importante, pues hizo de vínculo entre sus compañeros y el profesorado. Así, en el grupo solicitante se combinaron docentes con más de 30 años de experiencia en la Universidad con profesorado joven, tanto desde el punto de vista del comienzo de impartición de clases como por la fecha de defensa de la tesis doctoral. Sin duda alguna, la heterogeneidad de los antecedentes de ambos grupos fue clave para debatir, intercambiar y consensuar estrategias pedagógicas útiles de acuerdo a la pluralidad de conocimientos y experiencias del equipo, lo que redundó en la toma de las mejores decisiones a la hora de implementar la propuesta. El hecho de que el grupo estuviera formado por un equipo de docentes diverso propició el trabajo colaborativo y el intercambio y aprendizaje de tácticas docentes innovadoras. Cabe destacar que algunos miembros del equipo solicitante ya habían colaborado activamente en proyectos de innovación del Vicerretorado de Calidad de la UCM (convocatorias PIMCD de 2013, 2014, y 2015, e Innova-Docencia de 2016-2017), lo que influyó positivamente a la hora de implicar al alumnado en la actividad docente innovadora propuesta. Este hecho quedó claramente reforzado por la posibilidad que ofrecía la convocatoria de incorporar alumnado como solicitante, y que hizo suya el proyecto, convirtiéndose junto al profesorado, por tanto, en organizador primario para la puesta en marcha del mismo. Asimismo, existían un importante número de actividades previamente consensuadas y trabajadas por el equipo solicitante, primando en muchas ocasiones el carácter transversal de las mismas. Además, la diversidad del profesorado posibilitó debatir, intercambiar y consensuar criterios y estrategias pedagógicas útiles de acuerdo a las características de la formación impartida, lo que condujo también a abordar el desarrollo de las competencias transversales del alumnado participante.

5. Desarrollo de las actividades

El desarrollo del proyecto se estableció en torno al siguiente plan de trabajo:

El investigador principal y coordinador del grupo estuvo a cargo de las siguientes tareas:

1) Revisión de experiencias previas sobre uso del debate formal como herramienta de innovación docente para el desarrollo temprano de las habilidades de comunicación y el análisis crítico de los estudiantes de Ciencias de la Salud.

2) Convocatoria y moderación de las reuniones del equipo solicitante del proyecto.

3) Distribución, seguimiento y apoyo en las diversas tareas del proyecto.

4) Elaboración de informes de proyecto.

El equipo de trabajo de forma conjunta estuvo a cargo de las siguientes tareas:

5) Selección previa de posibles temas susceptibles de debate.

6) Diseño y planificación de las diferentes sesiones de debate.

7) Establecimiento de criterios comunes que se deberían seguir para conseguir los objetivos propuestos en las diferentes sesiones de debate.

8) Organización de los grupos participantes.

9) Asignación de los temas de debate y tareas a cada grupo, atendiendo a las preferencias que cada uno mostró de acuerdo a los contenidos cursados en sus respectivos Grados.

10) Asesoramiento y supervisión del alumnado en las tareas de preparación de las sesiones de debate y, en su caso cuando fue necesario, en los ensayos previos a las mismas.

11) Recopilación, tratamiento, preparación y difusión de los resultados del proyecto en diferentes jornadas, encuentros y congresos sobre Innovación y Calidad Docente Universitaria.

12) Elaboración de informes para establecer mejoras en los siguientes cursos académicos en donde se repita la actividad docente innovadora propuesta.

Todo el aprendizaje al que se refiere el plan de trabajo fue tutelado por el profesorado integrante del proyecto que, de modo general, realizó tutorías con los estudiantes de dos formas: En grupos reducidos focalizando el trabajo en cada sesión de debate y presentación en particular, y en grupos más grandes, abarcando a todos participantes, donde profesorado y alumnado reflexionaron conjuntamente sobre el trabajo realizado y se ayudó a la mejora constructiva de las sesiones de debate que llevarían a cabo públicamente.

En cuanto a la viabilidad de la actividad docente innovadora descrita en la presente memoria, esta se encontró siempre garantizada, pues tuvo lugar en las aulas de la Facultad, dentro de la programación docente y en el horario destinado a los seminarios. Las experiencias de éxito desarrolladas previamente por el equipo solicitante, gracias a los proyectos concedidos en anteriores convocatorias de PIMCD e Innova-Docencia del Vicerrectorado de Calidad de la UCM, fueron referencia para que el proyecto solicitado se pusiera en marcha y desenvolviera en las mejores condiciones.

El equipo desde tempranamente en su trayectorias ha asumido como prioridad, además de su trabajo como investigadores en Biomedicina, su formación en la mejora docente, asistiendo a espacios de intercambio docente como jornadas, congresos y encuentros, además de participar en proyectos y actividades de innovación docente que persigan la renovación de la docencia universitaria, la mejora de su calidad y la adaptación a la convergencia del Espacio Europeo de Educación Superior. En dichos foros, los miembros del equipo han dado a conocer los resultados de sus proyectos de innovación educativa, siendo incluso organizadores de encuentros derivados de experiencias docentes innovadoras, por lo que su experiencia en la difusión y transferencia de resultados en este campo es amplia. Por tanto, y como se mencionó anteriormente, fue también objetivo del proyecto realizar un plan de difusión y transferencia de los resultados obtenidos en eventos y publicaciones sobre innovación docente, semejante a los llevados a cabo en experiencias anteriores. Así, los resultados del proyecto se prepararon y difundieron en diferentes jornadas, encuentros y congresos sobre Innovación y Calidad Docente Universitaria de prestigio, de carácter multidisciplinar e Internacional, siendo comentados y compartidos con otros colegas de universidades y centros de educación superior. La intención última del equipo de trabajo era que otras instituciones universitarias en donde se imparten Grados relacionados con las Ciencias de la Salud y afines pudieran reproducirlos. En este sentido, la actividad docente innovadora no solo contribuiría a la formación y mejora de las capacidades del alumnado participante, sino de modo global podría ser un referencia más que demostrara la mejora de las habilidades de comunicación del estudiantado de los Grados de Medicina, Nutrición Humana y Dietética, Odontología y otras Ciencias Biomédicas del ramo, a través de este tipo de actividades.

Particularmente, los resultados se presentaron en la 10ª Conferencia Internacional de Educación, Investigación e Innovación (ICERI), organizada por la International Academy of Technology, Education and Development (IATED),

que tuvo lugar los días 16, 17 y 18 de noviembre de 2017 en Sevilla; el I Congreso Virtual Internacional y III Congreso Virtual Iberoamericano sobre Recursos Educativos Innovadores, organizado por la Universidad de Alcalá, la Universidade Federal do Rio Grande do Sul, la Universidad de Murcia y la Universidade Aberta, celebrado del 11 al 17 de diciembre de 2017 en Alcalá de Henares; y la 12ª Conferencia Internacional sobre Tecnología, Educación y Desarrollo (INTED), organizada en Valencia durante los días 5, 6 y 7 de marzo de 2018 por la IATED. Los títulos de las comunicaciones presentadas fueron los siguientes:

i) Paredes, S.D., Rancan, L., García, C., García, J.C., Garutti, I., Simón, C., Zueco, J.A., Tresguerres, J.A.F., Vara, E. Use of formal debate as an educational innovation tool for early development of communication skills and critical analysis of Health Science students (Comunicación ID 2091). 10th International Conference of Education, Research and Innovation (ICERI), Sevilla, 2017.

ii) Paredes, S.D., Rancan, L., García, C., García, J.C., Garutti, I., Simón, C., Zueco, J.A., Tresguerres, J.A.F., Vara, E. Desarrollo de habilidades comunicativas y análisis crítico usando el debate formal como herramienta de innovación docente: Análisis de las opiniones del alumnado participante. I Congreso Virtual Internacional y III Congreso Virtual Iberoamericano sobre Recursos Educativos Innovadores, Alcalá de Henares, 2017.

iii) Paredes, S.D., Rancan, L., García, C., García, J.C., Garutti, I., Simón, C., Zueco, J.A., Tresguerres, J.A.F., Vara, E. Evaluation of the acquisition of competences through an educational innovation tool based on formal debate (Comunicación ID 1743). 12th International Technology, Education and Development Conference (INTED), Valencia, 2018.

iv) Paredes, S.D., Rancan, L., García, C., García, J.C., Garutti, I., Simón, C., Zueco, J.A., Tresguerres, J.A.F., Vara, E. Perceptions of medical students towards using formal debate as a strategy to improve curricular and cross-curricular competences (Comunicación ID 1744). 12th International Technology, Education and Development Conference (INTED), Valencia, 2018.

La primera fue además publicada en los Proceedings of ICERI2017 Conference 8553-8557 IATED Academy (I.S.B.N.: 978-84-697-6957-7), 2017, mientras que la tercera y la cuarta lo fueron en los Proceedings of INTED2018 Conference IATED Academy (I.S.B.N.: 978-84-697-9480-7), 2018, siendo su paginación, respectivamente, 7410-7414 y 7415-7419.

6. Anexos

Los siguientes anexos incluyen los productos generados y publicados en los diversos foros sobre innovación y mejora de la calidad docente que han sido mencionados en el apartado anterior.

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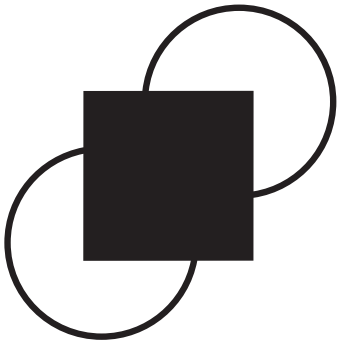

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USE OF FORMAL DEBATE AS AN EDUCATIONAL INNOVATION TOOL FOR EARLY DEVELOPMENT OF COMMUNICATION SKILLS AND CRITICAL ANALYSIS OF HEALTH SCIENCE STUDENTS

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Abstract

Instructional debate is a methodology that incorporates the theory of lifelong learning coupled with the active participation of students. It has the advantage of being less complex than structured problem-based learning (PBL). In fact, this teaching tool is currently an accepted form of teaching method in several professional schools and faculties of Health Sciences throughout the world, where successful experiences have long been described. However, its use in our local context and in the particular field of Biomedical Sciences is quite limited. Ideally, the use of debate as an innovative teaching-learning method should focus on developing students' reasoning and logical communication skills. Thus, a well-designed discussion should require the student to think, gather information, read and write critically, summarizing and subsequently exposing complex concepts to their peers and professors in a coherent, well-researched way, supported by the scientific literature. In relation to this, there are many forms of debate strategies, such as the informal debate, also known as expository debate, where students are asked to come prepared to discuss a specific topic in the next class. Nonetheless, there is another approach, the formal debate, which offers better results in the medium and long term. It involves taking a controversial issue, framing it within a resolution statement or affirmation (for example, making a proposal or a recommendation on that topic) and requires that a group of students stand in favor and defend the claim and that another group argue against it, refuting it. Students are asked to present their arguments in a pre-established and previously prepared format under the supervision of the faculty involved. It frequently alternates point and counterpoint in a pre-established time that is usually timed by the facilitator who acts as a moderator. On the other hand, the deficiencies in communication skills and emotional management in the health professions are a verified reality. In fact, health professionals argue that they have not had apprenticeship or training in the context in which they perform their work, or that it has been insufficient. Formal debate appears as a useful tool to develop those skills early and, in turn, fostering critical analysis in Health Science students.

Keywords: Formal debate, communication skills, critical analysis, Health Sciences.

1 INTRODUCTION

Problem-based learning (PBL) is a methodology centered on the process of learning, that is, on the research and reflection that the students follow to reach a solution to a problem raised by professors. Generally, within the process professors explain a part of the subject and then propose to the students an activity of application of those contents. In contrast, PBL is proposed as a way for students to acquire this knowledge and apply it to solve a real or fictitious problem. In this context, professors do not use lectures or other similar methods to transmit knowledge. However, this methodology requires, to be effective, a design that can sometimes be difficult to obtain, in addition to well-trained faculty.

In this sense, finding other strategies that focus on the active participation of students and adhere to the principles of lifelong learning, but with lower level of training or experience, could provide alternatives to achieve successfully the same acquisition of general and transversal competencies, which would be especially useful for professors who are in the initial stages of the teaching career. Thus, a methodology that incorporates the theory of learning along life together with the active participation of students and which has the advantage of being less complex than the structured PBL is the format of instructional debate [1]. In fact, this teaching tool is currently an accepted form of teaching method in various professional schools and faculties of Health Sciences in other countries, with successful experiences being described for a long time [2], although its use in our context and in the specific field of Biomedical Sciences is limited.

Ideally, the use of debate as an innovative method of teaching-learning should focus on developing the reasoning ability and logical communication of students. Thus, a well-designed discussion should require that students think, search for information, read and write critically, synthesizing and subsequently exposing complex concepts to their peers and professors in a coherent, well researched way supported by scientific literature. In this regard, there are many forms of debate strategies, such as the informal debate, also known as expository debate, where students are asked to come prepared to discuss a specific topic in the next class. However, there is another approach, the formal debate, which offers better results in the medium and long term. It involves to take a controversial issue and to frame it within a resolution statement or affirmation (for example, making a proposal or a recommendation on the subject). It also requires that a group of students stand in favor and defend the claim and that another group argue against it, refuting it. Students are asked to present their arguments in a pre-established format previously prepared under the supervision of the faculty involved, usually alternating point and counterpoint, in a period of time that is usually controlled by the facilitator who acts as moderator [3]. On the other hand, the deficiencies in communication skills and emotional management in the health-related professions seem to be a fact. Actually, health professionals argue that they have not had apprenticeship or training in the context in which they perform their work, or that it has been insufficient. The innovation experience presented here intends to develop these skills early, as well as fostering student critical analysis.

2 METHODOLOGY

In a broad sense, the aim of the innovation experience was to introduce an educational tool such as the formal debate to encourage the active participation of students in the construction of knowledge, as well as to develop didactic strategies for their autonomous learning and to design active processes of acquisition of skills and abilities for their professional performance. Thus, the project focused on developing students' critical and self-critical reasoning and their ability to adapt to a situation as novel as the one proposed by the formal debate, in this case of Karl-Popper type. To do this, students had to learn to manage the sources (databases, repositories, articles, monographs, etc.) chosen for the elaboration of the argument in favor or against the statement selected or assigned. Also, they were trained to follow the principles of rigor and scientific quality, as well as incorporating the ethical principles governing scientific research and professional practice. Finally, abilities to work both autonomously and as a team were taught in order to progress in skills to operate in multidisciplinary groups, as well as to acquire decision-making capacity and show creativity, initiative and entrepreneurship.

In a stricter sense limited to the competencies that Health Sciences students should acquire during their university studies but that graduates consider that they should be tackled in greater depth and dedicate a greater time to them, the present innovation experience aimed to address and improve the following aspects:

1 To communicate effectively and clearly, both orally and in writing, with patients, relatives, the media and other professionals.

2 To establish good interpersonal communication that empowers patients, relatives, the media and other professionals with efficiency and empathy.

3 To write and communicate biomedical records comprehensively to third parties.

4 To know, to evaluate critically and to use the sources of clinical and biomedical information for obtaining, organizing, interpreting and communicating scientific and health information.

5 To have a critical, creative point of view in the future professional activity with constructive skepticism and orientated to research and the scientific method.

6 To understand the importance and limitations of scientific thinking in the study of the various fields that make up the Health Sciences.

Each participating professor was in charge of groups of students who belonged to the subjects they taught. Firstly, students were shown the necessary guidelines they had to follow in order to defend statements successfully in the context of formal debate, familiarizing them with the techniques and standards used in the discussion. Next, the selection of topics, which was proposed by the students themselves, was done, as it is known that the level of motivation and involvement increases significantly when students investigate and defend, or refute, ideas that are interesting to them. Some examples of statements that were debated were: "Anabolic steroids should be allowed in and out of the sports arena", or "acupuncture is a medical technique that solves medical problems that conventional medicine does not". Sometimes it becomes necessary the intervention of professors when disagreements arise between students or they do not take the necessary initiative. Nonetheless, this may even come to restrain students, who may be forced to choose certain topics that in fact are not totally convincing to them. To solve this, other students acted as links between their peers and professors. As for the debate process itself, among the many types of formal debate that exist, we used the so-called debate of Karl-Popper. This discussion format focuses on relevant propositions that are often inherently divisive, as mentioned above, which emphasizes the development of critical thinking skills and tolerance for different points of view. Thus, each team participating in a discussion session investigated both sides of each position, trying to identify their own strengths and weaknesses and the opposite position. This ensured a high level of argumentation, as expected in an activity conceived for a university context. In this way, each team had the opportunity to offer arguments and direct questions to the opposing team. At the end of the session, facilitators-moderators provided constructive comments, commenting on logical flaws, insufficient evidence or arguments that participants overlooked.

3 RESULTS AND CONCLUSIONS

The construction of the European Higher Education Area has changed the role of students, which has taken on a special significance; first, because they themselves must be the engine that generates their learning, and secondly, because they must not only learn within the higher institutions, but any educational situation and experience must be able to bring them to knowledge throughout their lives. It is thus necessary to establish in the curricula not only competencies specific to the degrees they are coursing, but also transversal competencies or attributes that university graduates should have regardless of their degrees. These generic or transversal competencies will be precisely those that allow university graduates to achieve higher levels of employability and citizenship, providing them with the generic aspects of knowledge, skills, and abilities that they must have when entering the labor market and in general in their condition of citizens. Given the characteristics of the innovative teaching activity that was carried out and which have been exposed in the previous sections, the use of debate as an innovative tool for the development of communication skills and critical analysis was used for the promotion of transversal competencies at three different but well defined levels:

1 Instrumental competencies, which included cognitive skills, methodological skills, technological skills and language skills.

2 Personal skills, related to individual abilities and social skills.

3 Systemic competencies, i.e., skills and abilities of the individual relating to the understanding of complex systems.

The approach of these competencies was carried out through an innovative methodology such as the Karl-Popper's debate. As previously mentioned, this format emphasizes team work and is a good format for beginner debaters, because each speaker in this debate should participate and members of the team need to communicate with each other during the designated preparation time [3].

Regarding the innovation activity presented here, we believe that, overall, the main goals of the innovation activity in relation to fostering the early development of communication skills and critical analysis in our students were achieved. However, in order to have reliable results on this particular aspect, the next step is to carry out a general evaluation of the whole activity. This is because assessment is, from an educational perspective, a very important and relevant part of the learning process. It allows students to improve their learning, as it also allows professors to progress and improve their teaching resources. In relation to this, formative assessment is defined as the assessment tasks designed not only for scoring, but also to provide feedback to students and

instructors in order to support teaching and learning [4]. In agreement to this, different peer-assessment strategies based on key aspects of the teaching-learning process established by the European Higher Education Area, including student active participation and information technology use, will be designed and used. Recent works [5] point out the very important changes and innovative strategies happening in the educational system during the last years. Student's active involvement in their own evaluation is more and more judged as a valid and desirable methodology. Actually, peer-assessment has been widely applied in higher education settings during the last two decades in the international context [6, 7]. Additionally, e-assessment (the use of information technology for any assessment activity) has gained a big increase in virtual learning environments. Thus, e-questionnaires will be passed to the participating students. Opinions, suggestions, and remarks will be taken into account for future events.

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RESÚMENES PRESENTADOS EN EL EVENTO

(Por orden alfabético)

Desarrollo de habilidades comunicativas y análisis crítico usando el debate formal como herramienta de innovación docente: análisis de las opiniones del alumnado participante

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Elena Vara Ameigeiras (Universidad Complutense de Madrid, España)

Resumen: El debate formal es una herramienta docente que incorpora la teoría del aprendizaje a lo largo de la vida junto con la participación activa del estudiantado y presenta la ventaja de ser menos compleja que el Aprendizaje Basado en Problemas estructurado. Consiste en tomar un tema controvertido, enmarcarlo dentro de una afirmación y requerir que un grupo de estudiantes se sitúe a favor y lo defienda y que otro grupo argumente en contra, refutándolo. Los argumentos se presentan en un formato preestablecido, trabajado anteriormente y supervisado por el profesorado implicado, generalmente alternando punto y contrapunto, en un tiempo también preestablecido cronometrado por el moderador. Uno de los desafíos más importantes al que se enfrenta el profesorado cuando diseña prácticas de aprendizaje innovadoras está relacionado con la evaluación de los beneficios de esa experiencia, con el fin de determinar su efectividad y encontrar posibles áreas de mejora. El presente trabajo expone los resultados del análisis cualitativo de una experiencia docente innovadora basada en el debate formal, realizada por alumnado del Grado de Medicina de la Universidad Complutense de Madrid, diseñada para reforzar las habilidades de comunicación y el análisis crítico en respuesta a la demanda profesional básico-clínica y social de tener futuros facultativos mejor formados en este ámbito. La mayoría de los participantes valoró positivamente que la actividad enseña a buscar información en equipo y de forma crítica, contrastando las fuentes científicas, y analizando y sintetizando los contenidos, así como a crear argumentos lo suficientemente potentes y elaborados para realizar una defensa exitosa de los mismos ante el grupo oponente, lo que diferenció a la actividad de los trabajos meramente expositivos. Entre los aspectos a mejorar destacaron el permitir un tiempo mayor para la argumentación y el fomentar una mayor implicación de determinados grupos participantes y del público oyente.

Palabras clave: análisis crítico, Ciencias de la Salud, comunicación, debate, evaluación.

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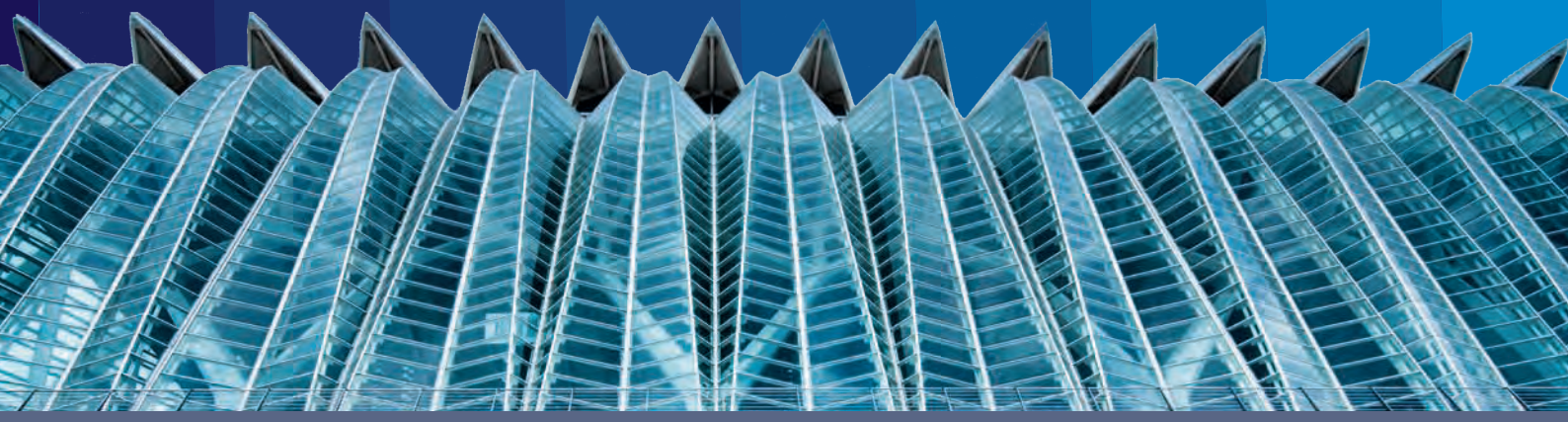

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EVALUATION OF THE ACQUISITION OF COMPETENCES THROUGH AN EDUCATIONAL INNOVATION TOOL BASED ON FORMAL DEBATE

S.D. Paredes[1], L. Rancan[1], C. García[1], J.C. García[2], I. Garutti[3], C. Simón[3], J.A. Zueco[1], J.A. Fernández-Tresguerres[1], E. Vara[1]

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Abstract

University education, and the mode of learning whilst at university, needs to prepare students for entry to an environment that demands non-routine cognitive and interpersonal skills, equipping them with appropriate tools, knowledge, values and attributes to thrive in it. It has been shown that exposure to formal debating provides a means of addressing some of the weaknesses regularly displayed by pre-graduate and graduate students. These beneficial effects are extended to improved ability to communicate, write, and read, encouraging students to conduct practical research and condense information sources in an efficient and critical manner. Reflective practice in the teachers' work should imply the evaluation of the consequences of all the innovations implemented in the classroom, considering positive aspects of the experience but also the areas which should be reviewed or improved for similar initiatives in the future. This work presents results of a quantitative analysis of an innovative teaching experience based on formal debate, carried out by students of the degree of Medicine of the Complutense University of Madrid. This activity was designed to reinforce the communication skills and the critical analysis in response to the basic-clinical and social demand to have future medical doctors better trained in these fields. Students received an invitation to complete a survey created with Google Docs once the innovation activity was finished. The completion of the survey was anonymous and non-compulsory. Participants had to score whether their participation in the innovation activity had helped them develop these specific skills, ranging their responses from 0, when the activity had not helped them at all acquire or train specific skills, to 3, if it had totally helped them do it. According to data, it can be concluded that the objectives of the innovation activity were achieved. In particular, most students considered that they increased their analysis, synthesis, and organizational abilities after the activity. They also opined that their oral and written communication skills, as well as their capabilities to solve problems and make decisions were improved. In addition, they thought that the preparation of debates trained them in finding credible information sources and increased their motivation for the quality of information. In this regard, they developed a scientific-oriented, critical attitude towards research and scientific reports since the aim of the activity was to refute the statements of the opponent group through evidence and scientific arguments. Thus, they had to scrutinize if the scientific papers they were using were well designed, if they had flaws, or if the conclusions were supported by the results. Most students also acknowledged that their participation in the activity help them improve their ability to work in interdisciplinary teams, develop and upgrade their skills in interpersonal relationship, learn autonomously, and adapt to new situations. Finally, they agreed that their creativity and initiative for increasing their knowledge on Health Science topics augmented. The evaluation of this innovative experience allowed participating professors to reflect on their teaching practice and the learning experience of students while being part of innovative educational practice. Moreover, it will assist professors to improve the design and development of similar teaching strategies in the future.

Keywords: Competences, Debate, Evaluation, Health Sciences.

1 INTRODUCTION

Universities are increasingly experimenting with alternative teaching strategies, such as problem-based learning and collaborative learning, to expand the range of learning outcomes and increase the relevance of student learning to future careers. In this regard, research has shown that using debate in higher education as a pedagogical tool has effect on promoting higher order and critical thinking [1]. This methodology incorporates the theory of learning along life together with the active participation of

students and has the advantage of being less complex than structured problem-based learning [2]. Many studies report positively on this method of teaching, showing that debates are an effective way to introduce complex and controversial issues into teaching to enhance learning and understanding of course content and to enable active engagement in learning. Using formal debate in higher education has also been associated with improving communication and empathy, critical-thinking ability, literature searching, and application of evidence, teamwork, and self-directed learning [3]. Bloom's taxonomy identifies critical thinking and reasoned argument as higher order thinking skills associated with evaluation skills [4]. Debates allow students an opportunity not only to identify that there is an issue to resolve, but also to demonstrate a deeper analysis of the issue, including appraisal, critique, and reasoning of the issue for a potential solution [5].

Evaluation of teaching and learning can be defined as "a systematic attempt to determine the effects of an educational initiative, innovation or experiment on student learning" [6]. The evaluation of teaching and learning, and particularly of teaching and learning innovation, has become a priority in universities. One of the purposes of evaluation of teaching is to provide information and feedback to instructors in order to improve the quality of teaching and learning. Teaching, like all other professional practices, has to be continuously and systematically examined, reflected on and improved. Evaluation can help teachers to identify problems in their teaching and learning and hopefully provide ways to tackle them. Although the success of a teaching innovation experience can be determined principally by evidence of changes or improvement of some kind in student learning, teaching innovation does not always enhance student learning. This is why carefully designed evaluation is important to determine in a rigorous way the influences of new curricula on student learning [6]. Some institutions and authors have proposed guides and criteria to evaluate teaching innovations in an objective and measurable way [7, 8]. Reflective practice in the teacher/instructor work should imply the evaluation of the consequences of all the innovations implemented in the classroom, considering positive aspects of the experience but also the areas which should be reviewed or improved in similar innovation activities in the future [9].

This work presents the results of the evaluation of an innovative teaching experience based on formal debate, carried out by students of the degree of Medicine of the Complutense University of Madrid, designed to reinforce the communication skills and the critical analysis in response to the social and professional basic-clinical demand to have future medical doctors better trained in this field.

2 METHODOLOGY

The aim of the innovation experience was to create, implement, and evaluate debate as a method of teaching in the degree of Medicine of the Complutense University of Madrid. The specific learning objectives for the students were that, on completion of debate sessions, they would have an appreciation of various issues relevant to Health Science, and develop debating skills, including formulation of arguments and evaluation of evidence. The hypothesis was that formal debates, which were not generally used in the official program at the time of this study, could be employed as a method to develop the communication skills and critical analysis of second-year medical students. Since critical and analytic skills are not frequently present in higher education students, higher order thinking activities, such as debate, are needed to instill these skills.

Formal debate sessions involved taking a controversial subject, framing it as a resolution statement (e.g., a proposal or recommendation), and requiring one group of students to affirm the resolution and another group to argue against the resolution. Students were then asked to present their arguments in a prearranged and timed format, alternating point/counterpoint. Furthermore, they had to consider both sides of an issue by critically analyzing their pre-existing beliefs.

Regarding the evaluation of the innovation experience, the aim was to assess with a quantitative analysis its effectiveness to develop cross-curricular competences of students, i.e. if participating in the debate sessions:

1 Increased their analysis, synthesis, and organizational abilities.

2 Improved their oral and written communication skills.

3 Trained them in finding credible information sources.

4 Improved their capabilities to solve problems and make decisions.

5 Improved their ability to work in interdisciplinary teams as well as develop and upgrade their skills in interpersonal relationships.

6 Developed a scientific-oriented, critical attitude towards research and scientific reports.

7 Helped them learn autonomously and adapt to new situations.

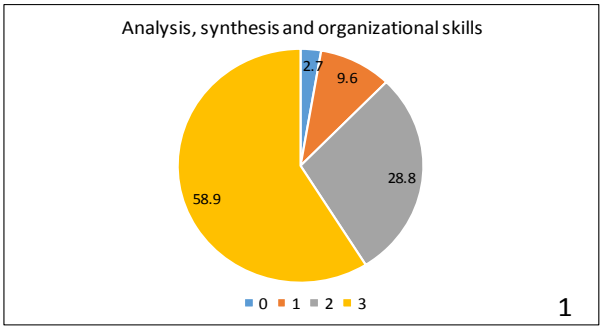
8 Augmented their creativity and initiative for increasing their knowledge on Health Science topics.

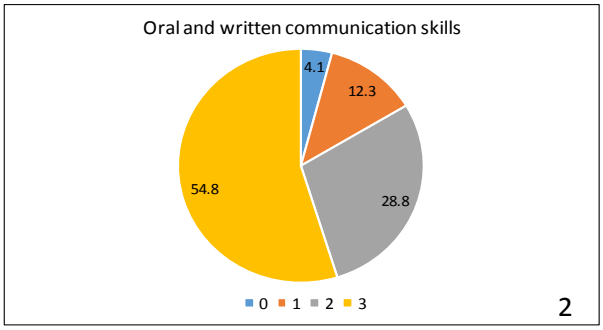
9 Increased their motivation for the quality of information.

It is known that if evaluation involves seeking student responses (as it often does) and if what they say is acted on, then this sends a clear message to students that their opinions are valued. This can not only enhance their learning, but also their satisfaction and involvement in the course. Thus, students received an invitation to complete a survey created with Google Docs once the innovation activity was finished. The completion of the survey was anonymous and non-compulsory. Participants had to score whether their participation in the innovation activity had helped them develop these specific skills, ranging their responses from 0, when the activity had not helped them at all acquire or train specific skills, to 3, if it had totally helped them do it. The final number of participants was 73. The results were expressed as percentages of the final number of responses received.

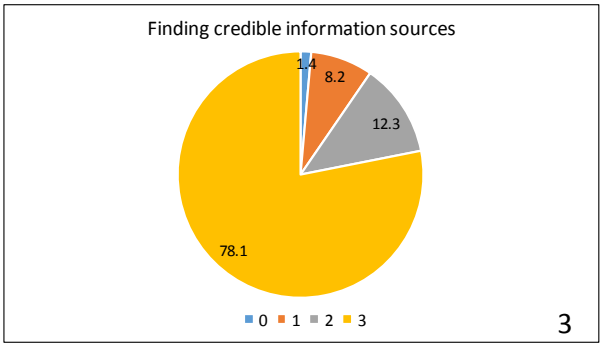
3 RESULTS

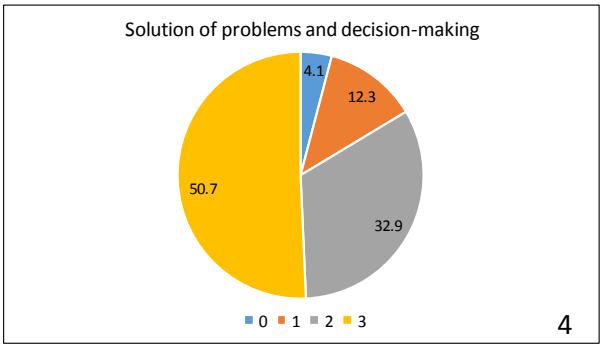
As shown in the Figures, most students agreed that their participation in the debate sessions increased their skills and competences, scoring the proposed statements with a 3. Only a minimal percentage of participants were in total disagreement with the statements (score = 0).



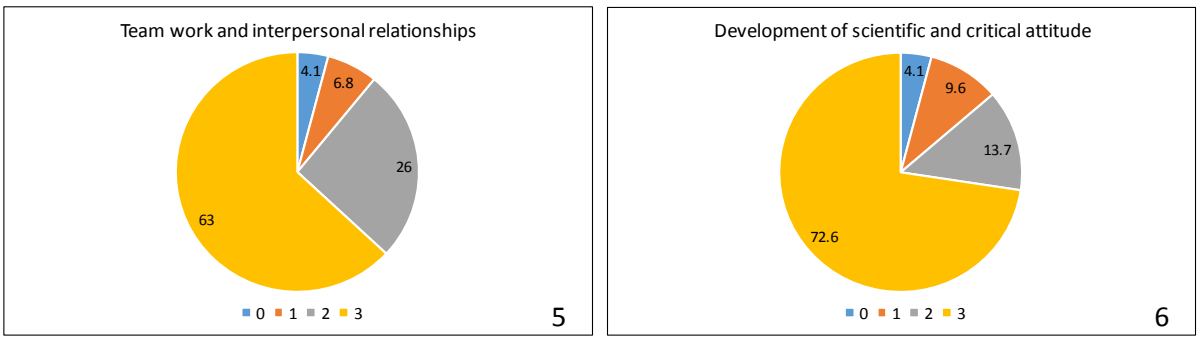


Figures 1 and 2. Percentages of students who scored whether their participation in the innovation activity helped them increase their analysis, synthesis, and organizational abilities (Fig. 1; left) and improved their oral and written communication skills (Fig. 2; right).

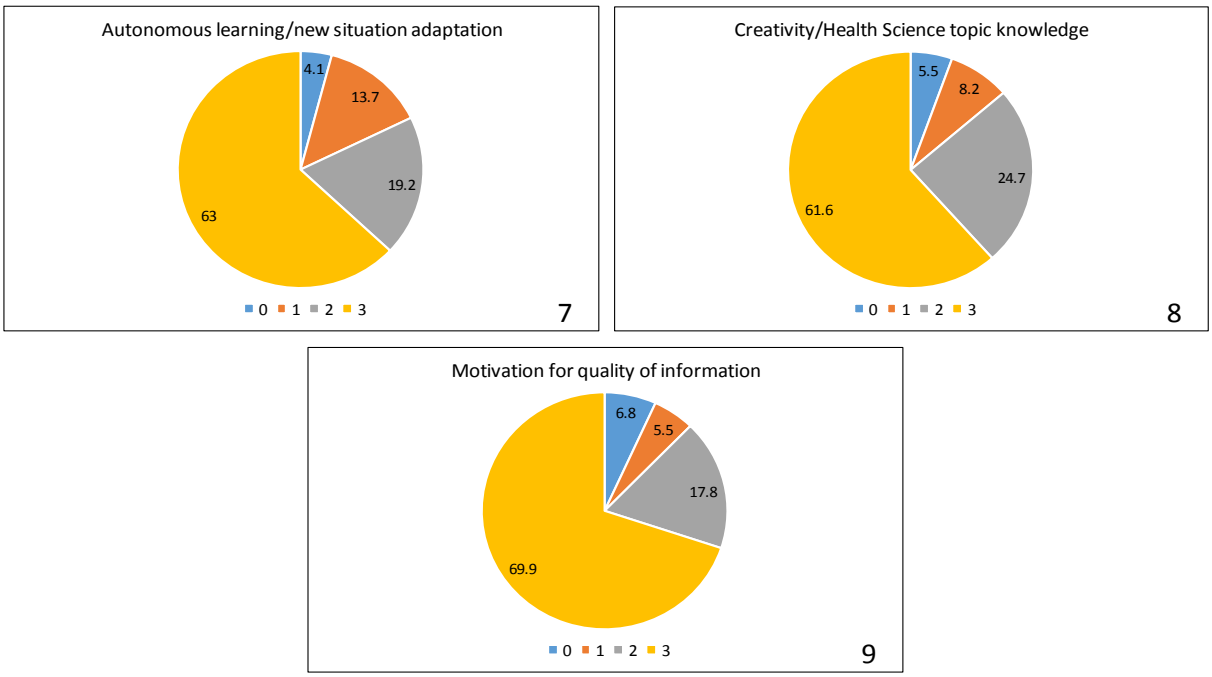




Figures 3 and 4. Percentages of students who scored whether their participation in the innovation activity trained them in finding credible information sources (Fig. 3; left) and helped them improve their capabilities to solve problems and make decisions (Fig. 4; right).



Figures 5 and 6. Percentages of students who scored whether their participation in the innovation activity helped them improve their ability to work in interdisciplinary teams and their skills in interpersonal relationships (Fig. 5; left) and develop a scientific-oriented, critical attitude towards research and scientific reports (Fig. 6; right).



Figures 7, 8 and 9. Percentages of students who scored whether their participation in the innovation activity helped them learn autonomously and adapt to new situations (Fig. 7; upper left), augmented their creativity and initiative for increasing their knowledge on Health Science topics (Fig. 8; upper right), and increased their motivation for the quality of information (Fig. 9; middle).

Individual analysis of items showed that the majority of students highly agreed that preparation of debates trained them in finding credible information sources and increased their motivation for the quality of information. Moreover, they also considered that the innovation activity let them create a scientific-oriented and critical attitude towards research and scientific reports. This may be due to the nature of the formal debate pattern used, since the aim of the activity was to refute the statements of the opponent group through evidence and scientific arguments. Thus, they had to scrutinize if the scientific papers they were using were well designed, if they had flaws, or if the conclusions were supported by the results.

4 CONCLUSIONS

Debates are generally thought to be an easily instituted learning format, which adheres to active learner participation and appears to be well received by students. This was confirmed by the results obtained in the quantitative analysis carried out in this work. In fact, in the present experience, debates appeared to be an effective way to introduce complex topics that lacked a clear consensus or did not have an unequivocal factual basis and, in so doing, helped students develop the capacity to articulate

cogent and logical arguments and provide them with opportunities to use complex thinking skills, as shown elsewhere [10]. Generally speaking, data showed that the objectives of the innovation experience were achieved, at least in part, because many of the participating students expressed that the whole activity helped them develop and practice cross-curricular skills that are not often addressed using traditional teaching methodologies. Moreover, the survey designed to implement the assessment of the experience proved to be useful to study the effectiveness of the innovation experience and the positive and negative aspects detected by the participants. However, some other evaluation methodologies should be included in the future to complement this assessment in order to have more complete and meaningful information on the experience, using for instance student interviews, group discussion or observation of behavior. Finally, these results will assist professors to improve the design and development of similar teaching strategies in the future.

ACKNOWLEDGEMENTS

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PERCEPTIONS OF MEDICAL STUDENTS TOWARDS USING FORMAL DEBATE AS A STRATEGY TO IMPROVE CURRICULAR AND CROSS-CURRICULAR COMPETENCES

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Abstract

Methods that encourage students to become involved in higher order thinking tasks such as analysis, synthesis, and evaluation are defined as active learning. Thus, active learning fosters complex thinking processes and improves retention, assimilation, understanding, and proper application of course content. Formal debates, a form of active learning, allow students an opportunity not only to identify that there is an issue to resolve, but also to demonstrate a deeper analysis of the issue, including appraisal, critique, and reasoning of the issue for a potential solution. These skills are also essential because healthcare professionals are frequently swamped with new evidence, and the only way to separate the valid from the invalid is to appraise and critique the evidence. With the aim of improving curricular and cross-curricular competences, medical students of the Complutense University of Madrid participated in an innovation activity consisting of a set of formal debate sessions. After the sessions were finished, professors developed and applied an extensive evaluation of the activity. Part of that evaluation was aimed at assessing the perceptions of participating students in relation to the use of formal debate as a didactic tool to improve their generic and specific competences. Students received an invitation to complete an e-questionnaire created with Google Docs once the innovation activity was finished. The completion of the survey was anonymous and non-compulsory. Participants had to score the components and features of the activity, ranging their responses from 0, when they were in total disagreement with the statement, to 3, if they totally agreed with it. During the preparation of debates, professors emphasized the importance of completing the survey in order to evaluate the activity, since it would provide feedback on the aspects that should be discontinued, repeated or improved. Students were asked if carrying out debates on a specific topic was an interesting methodological alternative in university teaching, if their participation in the activity had increased their motivation in the subject and degree, if it had helped them develop competences that other more traditional methodological strategies of teaching do not allow, if the diversity of topics discussed during the debate sessions was appropriate and formative, and if the activity should be repeated in the future. The majority of participating students rated these statements as “highly agree”, i.e., 3, with the exception of the question on their motivation, where responses were equally distributed between “agree” (2) and “highly agree” (3). This probably reflects the fact that most medical students are already motivated when they choose to study Medicine, a trend that normally continues or even increases during the degree. The innovation activity also included a competitive element since the audience, who was composed by their classmates, had to score their performance. For this reason, the questionnaire contained 2 additional items asking if this competitive aspect had increased their motivation and if they agreed that their peers participated in their evaluation. In both questions, participants said that they “highly agreed” with the statement. Finally, they also thought that the feedback provided by professors and moderators had been positive for their learning. These results encourage to continue celebrating the formal debate sessions with future students.

Keywords: Competences, Debate, Evaluation, Health Sciences.

1 INTRODUCTION

Medical educators have called for novel teaching methods and materials to supplement the traditional lecture format. In this regard, literature reports that debate, a form of active learning, promotes communication and social interaction skills and also gives students a chance to engage in discussions and shared-learning opportunities [1]. These skills and competences are necessary when working in practice as part of a healthcare team, as using evidence, problem-solving, communicating, and

negotiating with colleagues and patients are fundamental to professional life [2]. However, research has shown that in-class debate has been under-utilized in higher education. In fact, the examination of 130 online syllabi for undergraduate courses found that only three incorporated debate [3]. Moreover, in teacher preparation, the implementation of debate as a pedagogical tool to promote learning as well as the research on this topic is relatively limited [4, 5]. In spite of this, there is a need in using debate in higher education and teacher preparation to prepare students to face the complexity of issues surrounding the modern world and to work with individuals with different viewpoints and backgrounds.

In the framework of higher education, assessment of student learning is a key and useful tool to enhance teaching. However, assessment should be continuous, formative and focused on the acquisition of a variety of generic competences, skills and long-life learning. Teaching should be, therefore, focused on the characteristics of the students, and their needs and interests to achieve self-learning through a teaching process based on competences [6]. In this context, formative assessment appears as a key element of the teaching-learning process.

Assessment is a very important and relevant part or the learning process, both for the teacher and the students. It allows students to improve their learning, as it also allows teachers to progress and improve their teaching resources. Several works point out that e-assessment (the use of information technology for any assessment activity) has experienced a big increase in learning environments. Moreover, students' active involvement in their own evaluation is progressively considered as a valid and desirable methodology [7].

Here, we present the results of a study designed to seek medical students' views, attitudes, and perceptions regarding the use of formal or instructional debate as a learning strategy for enhancing curricular and cross-curricular competences, namely, critical thinking and communication skills.

2 METHODOLOGY

Participants in the debate sessions were second-year medical students from the Complutense University of Madrid.

The aim of the innovation experience was to introduce an educational tool such as the formal debate to encourage the active participation of students in the construction of knowledge, as well as to develop didactic strategies for their autonomous learning and to design active processes of acquisition of skills and abilities for their professional performance. The Karl-Popper debate was the choice to carry out the activity [8]. This debate format focuses on relevant propositions that are often inherently divisive, which emphasizes the development of critical thinking skills and tolerance for different points of view. Thus, debate sessions involved taking a controversial subject, framing it as a resolution statement (e.g., a proposal or recommendation), and requiring one group of students to affirm the resolution and another group to argue against the resolution. Students were asked to present their arguments in a prearranged and timed format, alternating point/counterpoint. In this regard, each team participating in a discussion session investigated both sides of each position, trying to identify their own strengths and weaknesses and those of the opposite position. This ensured a high level of argumentation, as expected in an activity conceived for a university context.

Once the innovation activity was finished, students received an invitation to complete an e-questionnaire created with Google Docs. The completion of the survey was anonymous and non-compulsory. Participants had to score the components and features of the activity, ranging their responses from 0, when they were in total disagreement with the statement, to 3, if they totally agreed with it. Results were expressed as percentages of the final number of responses received. Specifically, perceptions of students towards using formal debate as a strategy to improve curricular and cross-curricular competences were assessed by means of the following statements:

1 The participation in the activity has increased my motivation in the subject and degree.

2 Carrying out debates on a specific topic is an interesting methodological alternative in university teaching.

3 The participation in the activity has helped me develop competences that other more traditional methodological strategies of teaching do not allow.

4 The competitive nature of the activity (i.e., being scored by my classmates) has increased my motivation.

5 The diversity of topics discussed during the debate sessions has been appropriate and formative.

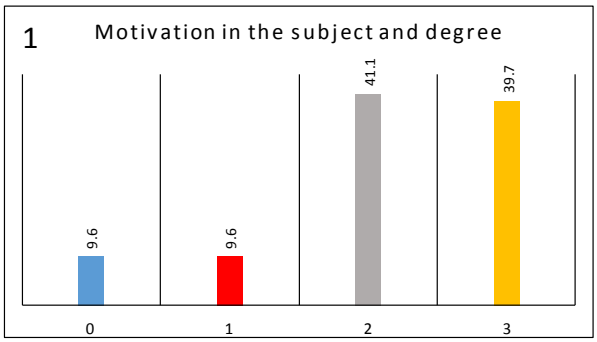
6 This activity should be repeated in the future.

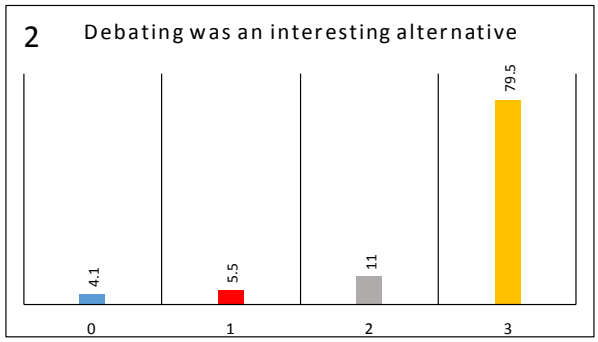
7 Feedback provided by professors and moderators has been positive for my learning.

8 I agree that my peers participate in my evaluation.

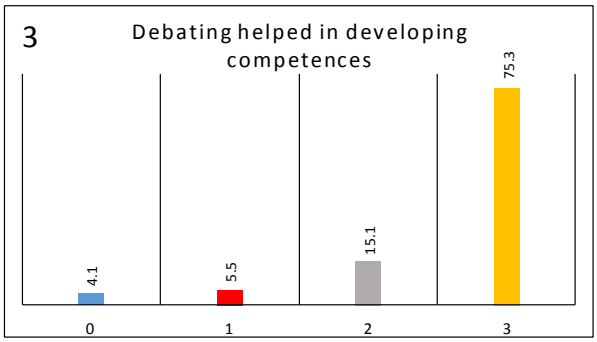
3 RESULTS

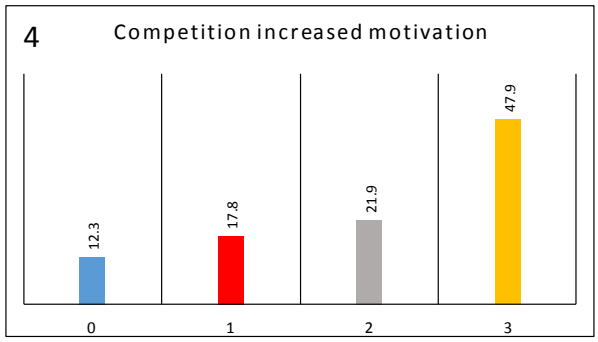
A total of 73 students participated in the survey. Most students considered that debating was helpful in achieving competences that are unable to obtain by means of other traditional teaching methods (Figure 3). They also opined that the chosen topics for the debate sessions were appropriate and formative (Figure 5). In addition, they thought that formal debate was an interesting methodological alternative in university teaching and, remarkably, that the activity should be repeated in the future (Figures 2 and 6). However, when asked if the activity increased their motivation in the subject and degree, student responses were equally distributed between “agree” (2) and “highly agree” (3) (Figure 1). This probably reflects the fact that most medical students are already motivated when they choose to study Medicine, a trend that normally continues or even increases during the degree. Most students also scored with a 3 (i.e., “highly agree”) the statement saying that “feedback provided by professors and moderators has been positive for my learning” (Figure 7). Finally, it can be said that the competitive aspect of the activity was well received. In general, students agreed that their peers participated in their evaluation and found it motivating (Figures 4 and 8).



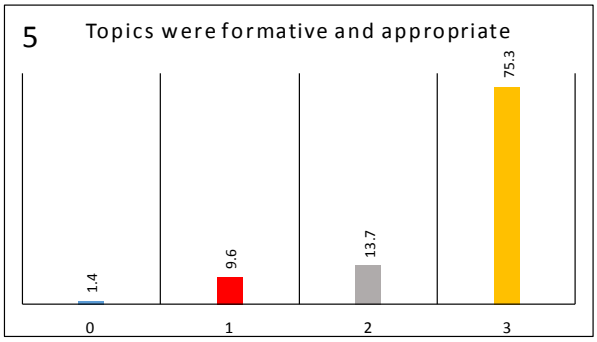


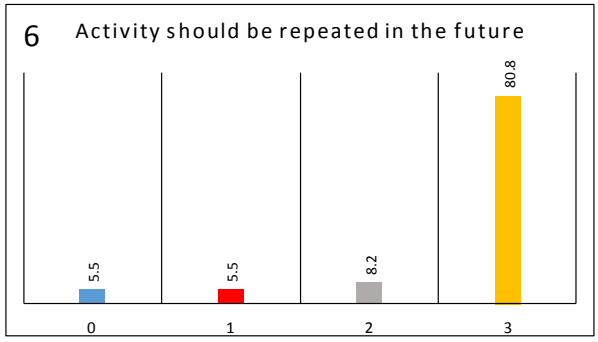
Figures 1 and 2. Percentages of students who scored whether their participation in the innovation activity increased their motivation in the subject and degree (Fig. 1; left) and whether carrying out debates on a specific topic was an interesting methodological alternative in university teaching (Fig. 2; right).



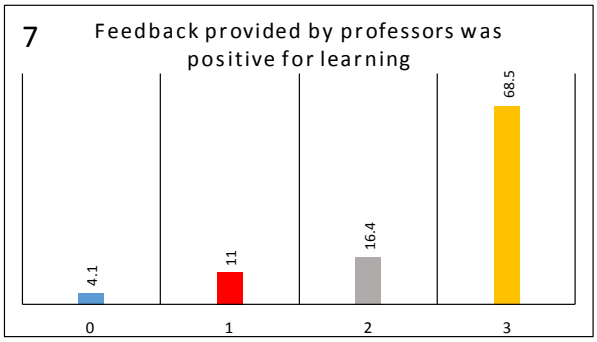


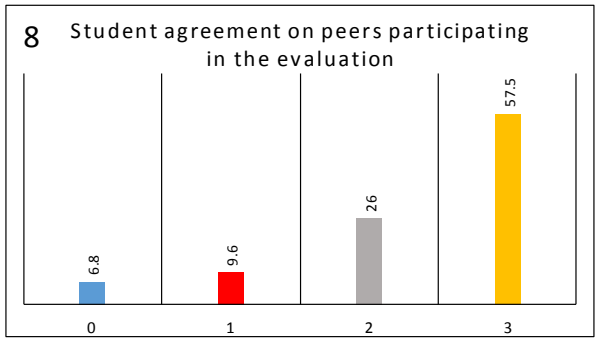
Figures 3 and 4. Percentages of students who scored whether their participation in the innovation activity helped them develop competences that other more traditional methodological strategies of teaching do not allow (Fig. 3; left) and whether their motivation increased due to the competitive nature of the activity (Fig. 4; right).





Figures 5 and 6. Percentages of students who scored whether the diversity of topics discussed during the debate sessions was appropriate and formative (Fig. 5; left) and whether the activity should be repeated in the future (Fig. 6; right).





Figures 7 and 8. Percentages of students who scored whether feedback provided by professors and moderators was positive for their learning (Fig. 7; left) and whether they agreed that their peers participated in their evaluation (Fig. 8; right).

4 CONCLUSIONS

In the present study, eight general items were evaluated with the objective of assessing the general opinion of participating students on the innovation activity. Although this report on the perceptions of students towards formal debate is purely descriptive, it is of interest to note how medical students perceived the debate format as a useful instructional tool. Taking together, the results showed that most students thought that participating in the debate sessions was beneficial for their learning. This is in agreement with other reports where this teaching tool has been used successfully in various professional schools and faculties of Health Sciences [2, 9-12]. Nonetheless, its general use in the field of Biomedical Sciences still seems to be limited. Hopefully, the results showed in the present work will provide instructors and educators with evidence to carry out similar activities with their groups. In addition, results suggest that medical schools may consider adopting debate within classes that allow for this type of format. Regarding the own teaching practice of participating professors, student positive feedback encourages to continue celebrating the formal debate sessions with future students. Further investigation is needed to evaluate whether there are significant differences in learning and socio-emotional competences with other groups where formal debating is not performed. Additionally, it may be of interest to investigate whether the same group of students would show a similar level of motivation when only exams performed at the end of the course are the chosen tool for assessment, and innovation activities, such as the set of formal debate sessions carried out here, are not performed during the course.

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