Proyecto de Aprendizaje- Servicio UCM convocatoria 2022-2023

STOP HIPERTENSIÓN CON APS/UCM I

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Índice de contenidos para el cuerpo de la memoria final:

1. Descripción del Equipo del proyecto y recursos humanos

Nombre y apellidos	**Adscripción**	**Función en el proyecto**	**Facultad/ Universidad**	**Departamento**
María Abad Cardiel	Profesora Asociado	Miembro equipo	Medicina/UCM	IdICSS/ Ciencias de la Salud
Ángel Agis Torres	Profesor titular	Miembro equipo	Farmacia/UCM	Fisiología
Verónica Azcutia Criado	Profesor ayudante doctor	Miembro equipo	Farmacia/UCM	Fisiología
Sara Benedito Castellote	Catedrático	Miembro equipo	Farmacia/UCM	Fisiología
José Manuel Bravo San Pedro	Contratado Ramon y Cajal	Miembro equipo	Medicina/UCM	Fisiología
Victoria Cachofeiro Ramos	Catedrática	Miembro equipo	Medicina/UCM	Fisiología
Belén Colino Galian	Profesora Asociado	Miembro equipo	Farmacia/UCM	Fisiología
Cristina Contreras Jiménez	Profesor Contratado Doctor	Coordinadora grado Podología	Farmacia/UCM	Fisiología
Mª José Fernández García	Secretaria administrativa	Miembro equipo	Farmacia/UCM	Fisiología
Rocío Flóres Alcázar	Secretaria administrativa	Miembro equipo	Medicina/UCM	Fisiología
José Antonio García Donaire	Profesor Asociado	Miembro equipo	Medicina/UCM	IdICSS/ Ciencias de la Salud
José Antonio García-Baró López	Profesor Contratado Doctor	Miembro equipo	Medicina/UCM	Fisiología
Alfonso Gómez del Val	Estudiante de Doctorado	Miembro equipo	Farmacia/UCM	Fisiología

Dulcenombre Gómez Garre	Profesor Asociado	Miembro equipo	Medicina/UCM	Fisiología
Ricardo Gredilla Díaz	Profesor Titular	Miembro equipo	Medicina/UCM	Fisiología
Natalia de las Heras Jiménez	Profesor Titular	Coordinadora grado enfermería y directora de TFG	Medicina/UCM	Fisiología
Marina Hernández Martín	Ayudante	Coordinadora grado Farmacia	Farmacia/UCM	Fisiología
Medardo V. Hernández Rodríguez	Catedrático	Miembro equipo	Farmacia/UCM	Fisiología
Verónica Hurtado Carneiro	Profesora Ayudante Doctora	Miembro equipo	Medicina/UCM	Fisiología
Jousef Ángel Issa García	Personal Investigador	Coordinador divulgación y difusión	Farmacia/UCM	Fisiología
Vitor S Leite Fernandes	Profesor Ayudante Doctor	Miembro equipo	Farmacia/UCM	Fisiología
Asunción López-Calderón Barreda	Catedrática	Coordinadora grado medicina	Medicina/UCM	Fisiología
Mª Elvira López-Oliva Muñoz	Profesora Titular	Directora Proyecto	Farmacia/UCM	Fisiología
Carmen Lozano Estevan	Profesor Ayudante Doctor	Miembro equipo	Farmacia/UCM	Nutrición y Bromatología I
Nieves Martell Claros	Profesor Asociado	Miembro equipo	Medicina/UCM	IdICSS/ Ciencias de la Salud
Ana Isabel Martín Velasco	Profesora Titular	Miembro equipo	Medicina/UCM	Fisiología

Ernesto Martínez Martínez	Profesor Ayudante Doctor	Miembro equipo	Medicina/UCM	Fisiología
Mª Pilar Montenegro Álvarez de Tejera	Profesor asociado 6+6	Miembro equipo	Farmacia/UCM	Fisiología
Álvaro Moreno Rupérez	Personal investigador	Miembro equipo	Medicina/UCM	Fisiología
Mercedes Muñoz Picos	Profesora Ayudante Doctor	Miembro equipo	Farmacia/UCM	Fisiología
Jorge Navarro Dorado	Profesora Ayudante Doctor	Miembro equipo	Farmacia/UCM	Fisiología
Elena Nebot Valenzuela	Profesora Ayudante Doctora	Miembro equipo	Medicina/UCM	Fisiología
Sergio Damián Paredes Royano	Profesor Titular	Coordinador servicio público ayuntamientos	Medicina/UCM	Fisiología
Natalia F. Pascual Gómez	Profesora Asociada 6+6	Miembro equipo	Farmacia/UCM	Fisiología
Manuel Perales Calvo	Técnico de laboratorio	Miembro equipo	Farmacia/UCM	Fisiología
Teresa Priego Cuadra	Profesor Contratado Doctor	Coordinadora grado Fisioterapia	Enfermería, Fisioterapia y Podología	Fisiología
Dolores Prieto Ocejo	Catedrática	Miembro equipo	Farmacia	Fisiología
Francisco Jesús Puente Maya	Técnico de laboratorio	Miembro equipo	Farmacia/UCM	Fisiología
Rafaela Raposo González	Profesora contratado Doctor	Miembro equipo	Farmacia/UCM	Fisiología
Mª Paz Recio Visedo	Profesora Titular	Miembro equipo	Farmacia/UCM	Fisiología

Rocío Redondo Castillejo	Personal investigador FPU	Coordinadora Campus Virtual	Farmacia/UCM	Farmacología, farmacognosia y botánica
Luis Rivera de los Arcos	Catedrático	Coordinador Doble grado Farmacia Nutrición humana y dietética	Farmacia/UCM	Fisiología
Raquel Rodrígues Díez	Profesor Ayudante Doctor	Miembro equipo	Medicina/UCM	Fisiología
Ildefonso Rodríguez Ramiro	Profesor Ayudante Doctor	Miembro equipo	Farmacia/UCM	Nutrición y Bromatología I
Ana Alejandra Sánchez Pina	Profesora Titular	Directora Proyecto	Farmacia/UCM	Fisiología
Alberto Sánchez-Aguilera, López	Profesor Ayudante Doctor	Miembro equipo	Medicina/UCM	Fisiología
María Sancho González	Profesor Ayudante Doctor	Miembro equipo	Medicina/UCM	Fisiología
Gregorio Segovia Camargo	Profesor Contratado Doctor	Miembro equipo	Medicina/UCM	Fisiología
Cristina Soriano Amador	Estudiante	Miembro equipo	Farmacia/UCM	Fisiología
Francisco Das Chagas Vasconcelos de Sousa Neto	Ayudante	Miembro equipo	Medicina/UCM	Fisiología
Mª Ángeles Vicente Torres	Profesora Titular	Coordinadora grado Nutrición humana y Dietética	Medicina/UCM	Fisiología

2. **Objetivos y contenidos de aprendizaje-actividades-indicadores de logro.** En la siguiente tabla se trata de relacionar los objetivos de aprendizaje propuestos inicialmente en el proyecto (puede copiarlos del diseño inicial) con las actividades o acciones realizadas para la consecución de los primeros y, en la última columna, enunciar los indicadores que han permitido al equipo valorarlos como objetivos logrados.

Objetivos de aprendizaje propuestos	**Actividades y acciones que los desarrollan**	**Descriptores de logro**
• Adquisición de conocimientos sobre la Hipertensión arterial (HTA) y la automedida de la presión arterial (AMPA) con orientación profesional, para resolver problemas reales.	• Conferencias y talleres prácticos sobre HTA y AMPA, impartidos por el profesorado de Fisiología, el presidente de la SEH-LELHA Dr. García Donaire y el líder HEARTS OMS/OPS Dr. Orduñez. • Autoaprendizaje. • Búsqueda bibliográfica en bases de datos científicas y de la iniciativa HEARTS y SEH-LELHA.	• Asistencia activa del alumnado de la UCM a las conferencias y talleres orientadores y formativos. • Examen multirrespuesta en el campus virtual.
• Fomentar el trabajo en equipo y la participación compartida entre el profesorado y alumnado y las entidades sociales implicadas.	• Organización de grupos de trabajo de 5-6 alumnos con un profesor que tutorizará todas las actividades.	• Valoración por parte del tutor del trabajo grupal del alumnado. • Resultados de las encuestas al alumnado y a la población.
• Incentivar las habilidades de comunicación en público del alumnado.	• Preparación de una presentación en formato Powerpoint. • Ensayos de la charla/taller que impartirá el alumnado en los centros.	• Supervisión por el tutor de la adecuación de la presentación y valoración de las destrezas de comunicación y trasmisión de la información.

•Fomentar destrezas, creatividad y originalidad en el diseño de materiales divulgativos.	• Realización de carteles, videos, infografías, hojas de registros, etc… • Fomentar el uso de la herramienta TICs.	• Calidad de los materiales elaborados y empleados en los talleres. • Exposición en el campus virtual y votación por todos los participantes del proyecto para la elección de los mejores materiales. • Uso de los materiales para la divulgación y promoción del proyecto.
•Promover la investigación y la divulgación de los resultados.	• Elaboración de bases de datos y registros obtenidos de la intervención en los centros. • Estudio estadístico. • Análisis e interpretación de los resultados.	• Presentación de comunicaciones a congresos y publicación de artículos científicos. • Colaboración con las sociedades científicas SEH-LELHA, SECF, SEPAC en la transferencia científica del proyecto.
• Reconocimiento de 2 ECTS.	• Realización satisfactoria de todas las actividades.	• Valoración de todos los criterios de aprendizaje y transversales según rúbrica.

2.1. Explicar brevemente qué conocimientos y competencias de la asignatura/s, TFGs, TFMs, Créditos de libre configuración de la titulación se han vinculado al desarrollo del proyecto (máximo 300 palabras)

Nuestro proyecto tiene carácter interfacultativo. El alumnado de los grados de ciencias de la Salud ha formado y capacitado a la población en la correcta automedida de la presión arterial, alertándoles para que acudan al médico a tiempo, haciendo un servicio público y sanitario que mejora la salud y el bienestar. Las actividades que realiza el alumnado combinan el servicio a la

comunidad y el aprendizaje académico basado en los contenidos del currículum, en concreto, en el conocimiento básico de la fisiología de la presión arterial y la fisiopatología de la hipertensión. Por ello, es preciso que el alumnado esté cursando o haya cursado las asignaturas de Fisiología y/o Fisiopatología, que se imparten en los grados que engloban el área de ciencias de la salud de la UCM por el Departamento de Fisiología de las Facultades de Farmacia y Medicina. El alumnado participante en esta convocatoria estaba matriculado en los siguientes grados y asignaturas:

-Grado en Farmacia
1er Curso, Bases anatómicas y Fisiología del cuerpo humano I (BANYFIS I)
2º Curso, Bases anatómicas y Fisiología del cuerpo humano II (BANYFIS II)
3º Curso, Fisiopatología
4º Curso, Hematología

-Doble grado Farmacia, nutrición y dietética
2º Curso, Fisiología

-Grado en Podología
1er Curso, Fisiología Humana

-Grado en Medicina
1er Curso, Fisiología Básica
2º Curso, Fisiología Humana

-Grado en Enfermería
1er Curso -Fisiología Humana

-Grado en Fisioterapia
1er Curso, Fisiología Humana

-Grado en Nutrición y Dietética
1er Curso, Fisiología Humana

Además, D. Brais Canitrot Lamas ha defendido el Trabajo Fin de Grado en el grado de Enfermería que ha sido dirigido por la Dra. Natalia de las Heras.

Así mismo, se ha ofertado el reconocimiento de 2 ETCS a todo el alumnado matriculado en los grados de ciencias de la salud que se hayan inscrito en el curso Stop Hipertensión con APS/UCM.

3. **Objetivos de servicio-propuestos-actividades/acciones-indicadores de logro.** En la siguiente tabla se trata de relacionar los objetivos de servicio propuestos inicialmente en el proyecto (puede copiarlos del diseño inicial) con las actividades o acciones realizadas para la consecución de los primeros y, en la última columna enunciar los indicadores que han permitido al equipo valorar como objetivos logrados.

Objetivos de servicio propuestos	Actividades y acciones que los desarrollan	Descriptores de logro
• Difundir el conocimiento sobre la presión arterial e HTA para mejorar la salud y el bienestar de la población. Concienciación social.	• Charlas y talleres a los colectivos vulnerables en entidades públicas y privadas de Madrid. • Participación en la Semana de la Ciencia de la Comunidad Autónoma de Madrid. • Feria de la Salud de Coslada • Campaña de hipertensión UCM	• Valoración por el tutor de la eficacia de la transmisión a la población de la importancia de la HTA. • Resultados de las encuestas al alumnado y a la población. • Estudio de los registros de AMPA obtenidos. • Valoración de los responsables en las entidades donde se realiza el servicio.
• Formar a la población en la correcta AMPA con los tensiómetros validados.	• Enseñanza y formación personalizada e individualizada de AMPA con los tensiómetros a los colectivos en las entidades colaboradoras.	• Valoración por el tutor de la actividad AMPA del alumnado. • Estudio de los registros de AMPA obtenidos. • Resultados de las encuestas de satisfacción a la población. • Valoración de los responsables en las entidades donde se

		realiza el servicio.
• Enseñar a la población a interpretar los resultados para conocer cuándo acudir al médico, para conseguir un diagnóstico precoz de la hipertensión y prevenir enfermedades cardiovasculares.	• Recogida de resultados de la presión arterial del primer taller. • Obtención de datos clínicos de los colectivos. • Cumplimentación de encuestas de satisfacción por la población en los centros.	• Valoración de los resultados obtenidos y alerta en la detección de personas con HTA. • Valoración por el tutor de la interacción del alumnado con la población. • Resultados de las encuestas de satisfacción a la población.
• Consolidación en el tiempo de la formación social en AMPA y concienciación de la HTA. Sostenibilidad.	• Se realizará una segunda intervención: Después de una semana, en un segundo taller, el alumnado acudirá otra vez al centro para supervisar los conocimientos adquiridos por la población. • Recogida de registros semanales de AMPA realizados por la población y solicitados en la primera sesión.	• Valoración por el tutor de la interacción y explicación del alumnado a la población. • Resultados de las encuestas de satisfacción a la población.
• Eficacia de la intervención social del alumnado en los centros para la detección de casos de HTA. Retroalimentación del conocimiento por el alumnado, profesorado y sociedad.	• Recogida de incidencias y dudas surgidas durante el registro de AMPA semanales y en los talleres. • Interpretación de resultados de AMPA semanales con la población.	• Valoración de los resultados obtenidos y alerta en la detección de casos HTA. • Valoración por el tutor de la interacción y explicación del alumnado a la población. • Resultado de las encuestas de

	• Recogida de resultados e inclusión en ficheros de bases de datos.	satisfacción a la población. • Valoración por revisores externos en la presentación de los resultados en congresos y revistas científicas para su publicación.

3.1. **Descripción de la situación o necesidad social mejorada gracias al proyecto,** (máximo, 250 palabras)

La medida de AMPA, que realiza el propio paciente en su casa, fuera del ámbito clínico, tiene un importante valor clínico y diagnóstico para detectar la hipertensión. Sin embargo, la sobrecarga del sistema de atención primaria de la salud hace que los profesionales sanitarios no tengan tiempo ni capacidad para entrenar al paciente, obteniendo registros erróneos. Debido a que la hipertensión en un grave problema mundial de salud pública, su diagnóstico correcto y a tiempo es prioritario y necesario para mejorar la salud pública. Nuestro proyecto ha cubierto esta necesidad social y de salud en colectivos vulnerables de padecer hipertensión, principalmente el colectivo de mayores. Además, ha contribuido a reducir la brecha de género, al intervenir en el colectivo de mujeres mayores.

La actividad de servicio público se ha realizado en dos talleres supervisados por profesores tutores. En un primer taller el alumnado instruye y adiestra en AMPA a la población mediante una charla-presentación. Tras la teoría, los usuarios aprenden AMPA con sus propios tensiómetros o con los tensiómetros de la Sección departamental de Fisiología de la Facultad de Farmacia. La consolidación en el tiempo de la capacitación de la población en AMPA se realiza a través de un segundo taller de retroalimentación de lo aprendido, donde se analizan los registros realizados por los usuarios durante una semana en su casa, siguiendo la pautas e instrucciones del alumnado. Además, los usuarios pueden resolver sus dudas contactando con el profesorado y alumnado a través del correo stophipertension@ucm.es en cualquier momento.

4. Cronograma del desarrollo

FASES del APS	Actividades/acciones	Septiembre	Octubre	Noviembre	Diciembre	Enero	Febrero	Marzo	Abril	Mayo	Junio
1ª convocatoria											
1. Coordinación	Reuniones y coordinación de las actividades con los ayuntamientos, IES, centros de mayores. Reuniones con todo el equipo de trabajo y coordinación general del proyecto.										
2. Organización y reclutamiento del alumnado	· Apertura del plazo de inscripción del alumnado voluntario · Sesiones informativas del proyecto ApS a los alumnos voluntarios de los grados de ciencias de la salud en clases, por Google Meet, redes sociales y página web del proyecto y facultades UCM. · Creación de grupos de trabajo de los alumnos inscritos en el proyecto.										
3. Realización FASE I Formación y capacitación del alumnado	· Impartición y asistencia a talleres y conferencias para la formación en HTA y AMPA. · Capacitación en AMPA. · Diseño y realización de materiales divulgativos y de difusión. . Examen test multirrespuesta.										
3. Realización FASE II Intervención en entidades para realizar el servicio público:	· Semana de la Ciencia CAM/UCM. · Centros de mayores. Ayuntamiento de Coslada.										

	· Colegio tres Olivos.										
2ª convocatoria											
2. Organización y Reclutamiento del alumnado	· Apertura del plazo de inscripción del alumnado voluntario · Sesiones informativas del proyecto ApS a los alumnos voluntarios de los grados de ciencias de la salud en clases, por Google Meet, redes sociales y página web del proyecto y facultades UCM. · Creación de grupos de trabajo de los alumnos inscritos en el proyecto.										
3. Realización FASE I Formación y capacitación del alumnado	· Impartición y asistencia a talleres y conferencias para la formación en HTA y AMPA. · Capacitación en AMPA. · Diseño y realización de materiales divulgativos y de difusión. · Examen test multirrespuesta.										
3. Realización FASE II Intervención en entidades para realizar el servicio público	· Centro de mayores Neurovida. . Centros de mayores, Ayuntamiento de Alcobendas.										
	· IES las Musas. · Asociaciones de salud Ayuntamiento Alcorcón.										
	· Feria de la Salud Coslada.										

	· Residencia Afanias.										
	· Campaña HTA UCM- Servicio de medicina del trabajo UCM.										
4. Cierre y celebración	Cierre Final - Celebración Entrega de diplomas y premios.								20-abr-23		
5. Transferencia y seguimiento común a las dos convocatorias	Recogida de resultados. Congresos y publicaciones. Evaluación de la eficacia del proyecto.										

5. **Metodología empleada** Describa la metodología empleada que le ha permitido la ejecución del proyecto de acuerdo con los objetivos de aprendizaje y servicio propuestos (250 palabras máximo).

El proyecto comenzó en septiembre de 2022 con la coordinación, el diseño y la organización de tareas. Se han reclutado 118 estudiantes en dos convocatorias, septiembre 2022 y enero 2023. El presidente de la SEH-LELHA, líder de la estrategia HEARTS OPS/OMS, y las Dras. Dolores Prieto y Sara Benedito han formado y capacitado al profesorado y alumnado con la impartición de clases magistrales y talleres AMPA. Grupos de 5-6 alumnos han sido tutorizados por dos profesores. Todas las actividades se realizan bajo la aprobación del comité de ética de investigación y biodiversidad UCM.

Del 7 al 20 de noviembre el alumnado realizó el primer servicio público durante la Semana de la Ciencia.

En noviembre de 2022 el alumnado ha trabajado en grupo, realizando talleres destinados a las personas mayores en el ayuntamiento de Coslada, a los usuarios de las Asociaciones de Salud del Ayuntamiento de Alcorcón, y también en la formación de alumnos del ciclo formativo de grado superior en Farmacia y Parafarmacia del Colegio Tres Olivos.

En marzo de 2023 el alumnado interviene en los centros de mayores del Ayuntamiento de Alcobendas, y en las residencias Neurovida y Afanias.

En abril y mayo de 2023 realizan el servicio público a la Feria de la Salud de Coslada y en la campaña de hipertensión de la UCM.

El 20 de abril de 2023 se celebró el acto del cierre y entrega de premios y diplomas.

Finalmente, se analizan y publican los resultados obtenidos y se valora la eficacia del proyecto.

6. **Evaluación multifocal y resultados.** Indique la técnica de evaluación participativa y si se ha utilizado algún tipo de rúbrica o instrumento y cómo los diferentes actores del proyecto han participado en la misma.

   Refiera, los resultados de las evaluaciones y/o la experiencia como proyecto APS. (250 palabras, máximo).

   A la luz de la práctica y los resultados incluya las reflexiones en torno a los logros y retos del servicio realizado y de los aprendizajes conseguidos.

El alumnado ha sido evaluado por profesores tutores asignados. Los tutores se han ajustado a los criterios de una rúbrica confeccionada específicamente para este proyecto. La obtención de los 2 ETCS ha estado condicionada por los siguientes indicadores como muestra el ANEXO II. Los 118 alumnos participantes en el proyecto han superado satisfactoriamente todos los indicadores.

Por otra parte, la eficacia del proyecto se ha evaluado a través de encuestas de satisfacción al colectivo de mayores y al alumnado. Los resultados indican que los usuarios están muy satisfechos con los talleres (98%), y afirman que su formación es útil para mejorar su salud (90%). Las encuestas al alumnado revelan que un 95% considera que este proyecto es una herramienta útil para luchar contra la hipertensión, un 97% considera que es útil para su formación como profesional sanitario, y un 88% está muy satisfecho al realizar un servicio a la sociedad. La nota media de satisfacción global ha sido de 8,7/10.

Los resultados de las evaluaciones de los alumnos, de los registros de la presión arterial obtenidos en los talleres y de las encuestas de satisfacción confirman la eficacia y aceptación de nuestro proyecto. El empoderamiento a la población en AMPA y al alumnado en su formación como profesionales, consolida nuestro proyecto, ya en esta primera convocatoria, como una nueva herramienta de diagnóstico de la presión arterial, que cubre una necesidad socio-sanitaria y puede salvar muchas vidas.

7. **Transferencias.** Indique si se han transferido los resultados y la experiencia en qué foros académicos y socio educativos (soportes publicaciones, instituciones, etc. (250 palabras, máximo).

La transferencia académica y difusión científica se manifiesta en que el estudiantado ha conocido la realidad social, actuando como profesionales en la lucha contra la hipertensión. Se han presentado dos comunicaciones a los Congresos ICERI-2022 y EDULEARN-2023, y se han publicado dos artículos en los proceedings de la editorial IATED. Las Sociedades científicas SEH-LELHA, SECF y SEAPEC y los colegios profesionales COFM y CODEM han colaborado en la divulgación de resultados.

La Transferencia social se evidencia en que nuestro alumnado ha atendido a unos 500 usuarios, detectando casos de hipertensión y mejorando la salud y el bienestar de la población, con un bajo coste, que cumple con los principios del desarrollo sostenible de la Agenda 2030. Los propios ayuntamientos en los Centros de Mayores y de día han incluido nuestro proyecto en sus actividades programadas, difundiendo nuestro taller en carteles y periódicos de Coslada, Alcobendas y Alcorcón y en la radio, onda cero Coslada. La colaboración con el líder de la HEARTS de la OPS/OMS ha permitido la difusión del proyecto, promoviendo su internacionalización. Nuestra participación en eventos como la Semana de la Ciencia CAM o jornadas de puertas abiertas en la UCM, y campañas y ferias de mejora de la salud y/o en la lucha contra la HTA permiten el acercamiento de la población a la universidad y la divulgación del proyecto. Nuestro Logo representativo, la página Web stophipertensión@ucm.es y redes sociales, @aps_stop y @stophipertension, así como la adquisición de materiales típicos de merchandising han dado visibilidad al proyecto.

8. **Conclusiones y propuestas de mejora.** Reflexiones en torno a los logros, fortalezas, debilidades y oportunidades del proyecto y cómo seguir desarrollándose en caso de que siga siendo socialmente necesario con propuestas concretas de mejora (300 palabras, máximo).

Podemos concluir que los resultados y el impacto de este proyecto, en esta primera convocatoria, tanto a nivel curricular como social, han sido muy satisfactorios. Hemos conseguido concienciar a 554 usuarios sobre la importancia de la hipertensión. La detección precoz de casos de hipertensión en los talleres hace que este proyecto sea una herramienta útil y costo-efectiva, amortizando los recursos de atención primaria del sistema de salud público. Se han cubierto las necesidades de las personas mayores más vulnerables, y en concreto el colectivo de mujeres. El alumnado ha consolidado los conocimientos curriculares adquiriendo competencias personales y de capacitación profesional, desarrollando la capacidad de análisis crítico y de educación cívica, siendo útiles a la sociedad al realizar un trabajo social. Además, se ha fomentado el trabajo en equipo, al promocionar la interacción del estudiantado y el profesorado y su participación compartida y activa con las entidades sociales implicadas. También, el alumnado ha desarrollado habilidades de comunicación al exponer en público, y ha adquirido creatividad y originalidad en el diseño de materiales divulgativos. Por otra parte, hemos conseguido promover la investigación y la divulgación de los resultados a través de publicaciones y participación en congresos internacionales de docencia. Finalmente, hemos obtenido el premio Emprendimiento Social UCM 2022 en la modalidad idea.

A pesar de estos logros, tenemos que destacar que, al ser la primera edición del proyecto y al estar implicados gran número de personas de los distintos estamentos con gran diversidad, la organización no ha sido fácil, teniendo que improvisar en algunas situaciones, que hemos podido solventar con éxito gracias a la generosidad, dedicación y sobreesfuerzo de los profesores coordinadores de cada grado. Aunque se han impartido 58 talleres será necesario incrementar el número de entidades sociales donde los alumnos realizarán el servicio público en la próxima convocatoria del proyecto.

9. **Anexos.** En el formulario de google que permite el cargue de la memoria se habilitará la opción de entregar material audiovisual ya sean videos, imágenes, fotografías, audios, presentaciones en formato ppt o archivos en pdf. La inclusión del material correspondiente a anexos puede darse en el cuerpo de la memoria o cargando los archivos como anexos en el formulario de google, esto a conveniencia del proyecto, siempre recordando que incluya el material preciso al que en el proceso del informe haya referido, ya que es interesante que se incluya material audiovisual que ilustre el proceso.

ANEXO I-ENTIDADES COLABORADORAS CON STOP HIPERTENSION APS/UCM

Entidades colaboradoras receptoras del servicio

Ayuntamientos de la Comunidad de Madrid

Ayuntamiento de Coslada

Ayuntamiento de Alcobendas

Ayuntamiento de Alcorcón

Residencias

AFANIAS

NEUROVIDA

IES /Colegios de FP

IES Las Musas

formación profesional

Colegio Tres Olivos

Integramos el talento

Entidades colaboradoras

Comunidad Complutense

- Departamento de Fisiología UCM
- Facultad de Farmacia UCM
- Servicio de Medicina del Trabajo UCM
- Museo de la Farmacia Hispana UCM

Sociedades Científicas

HEARTS en las Américas

SEHLELHA

Sociedad Española de Hipertensión -Liga Española para la Lucha contra la Hipertensión Arterial

Sociedad Española de Ciencias Fisiológicas

SEAPEC

Sociedad Española de Atención a las Personas con Enfermedades Crónicas

Colegios profesionales

COFM Colegio Oficial de Farmacéuticos de Madrid

CODEM Colegio Oficial de Enfermería de Madrid

Empresas

beurer salud y bienestar

River International S.A.

OMRON

Peroxfarma S.A.

ANEXO II- RÚBRICA EVALUACIÓN- INDICADORES Y CRITERIOS.

	Criterios	Muy adecuado (3)	Adecuado (2)	Básico (1)	Inadecuado (0)
EVALUACIÓN DEL DESARROLLO DEL PROYECTO	Conocimientos adquiridos en clases teóricas y seminarios Test multirrespuesta	Responde correctamente al 80-100% de las preguntas formuladas	Responde correctamente entre el 60-79% de las preguntas formuladas	Responde correctamente entre el 50-59% de las preguntas formuladas	Responde correctamente entre el 0-49% de las preguntas formuladas
	Valoración de los materiales elaborados	Realiza correctamente todos los materiales propuestos durante el proyecto de forma crítica y reflexiva aportando propuestas de mejora	Realiza todos los materiales propuestos durante el proyecto aunque algunos necesitan mayor grado de elaboración	Realiza los materiales propuestos de forma parcial y poco elaborada	No realiza los materiales propuestos en el Proyecto
	Valoración de la (intervención) participación en la Semana de la Ciencia	Participa activa y plenamente en todas las actividades de las jornadas de la Semana de la Ciencia	Participa en la mayoría de las actividades de la Semana de la Ciencia	Participa en algunas actividades de la Semana de la Ciencia	No participa en esta actividad
	Valoración del servicio en los centros de la Comunidad de Madrid	Tiene una participación activa y muy eficaz con el colectivo del servicio de los centros	Participa eficazmente en alguna de las activades realizadas en los centros donde se realiza el servicio	Participa parcialmente en las actividades que se realizan en los centros donde se realiza el servicio	No ha participado en esta actividad
	Reflexión y capacidad crítica (dificultades y adecuación, soluciones adoptadas, relación con entidades y líneas de mejora)	La reflexión sobre las actividades del Proyecto es muy adecuada, mostrando un espíritu crítico y de mejora continua. Analiza, identifica, comprende y evalúa todas las situaciones que le permiten tomar las decisiones más acertadas	Presenta un proceso de reflexión correcto, aunque podría incrementar su espíritu autocrítico o las líneas de mejora a adoptar. Analiza, identifica, comprende y evalúa algunas de las situaciones del Proyecto en las que toma las decisiones más acertadas	Su reflexión resulta pobre, destacando una escasa capacidad de autocrítica y sin plantear líneas relevantes de mejora. Analiza parcialmente pocas de las situaciones del Proyecto.	No reflexiona. No tiene capacidad crítica
	Resultados y hallazgos	Recoge y analiza todos los resultados obtenidos en todas las actividades	Recoge y analiza algunos de los resultados obtenidos en todas las actividades del Proyecto	Recoge y analiza (parcialmente) pocos resultados en alguna de las actividades del Proyecto	No registra ni recoge resultados
	Transferencia y difusión de resultados	Interviene o participa en todas las jornadas y congresos propuestas para la difusión de resultados	Interviene o participa en la mayoría de las jornadas y congresos propuestas para la difusión de resultados	Interviene o participa en pocas jornadas y congresos propuestas para la difusión de resultados	No participa en estas actividades

	Criterios	Muy adecuado (3)	Adecuado (2)	Básico (1)	Inadecuado (0)
EVALUACIÓN DEL DESARROLLO DE COMPETENCIAS TRANSVERSALES	Tutorías y plazos de entrega de materiales	Ha participado satisfactoriamente en todas las sesiones programadas de tutoría y ha cumplido los plazos establecidos para las entregas.	Ha participado adecuadamente en las tutorías, aunque en alguna ocasión se ha retrasado o no lo ha justificado adecuadamente, pero ha cumplido los plazos establecidos para las entregas	Ha asistido a tutorías en ocasiones y/o ha mostrado un pequeño retraso justificado en las entregas (no más de dos días)	No ha asistido a las tutorías o se han desarrollado con escaso interés y/o ha mostrado un retraso injustificado y notable en las entregas.
	Capacidad de comunicación y expresión en publico	Ha elaborado estrategias de comunicación excelentes que han convencido al público en todas las actividades	Ha elaborado buenas estrategias de comunicación que han convencido al público en todas las actividades	Ha elaborado algunas estrategias pero no ha convencido al público en todas las actividades	No ha elaborado estrategias que mejoren su capacidad de comunicación y expresión
	Motivación	Se muestra muy motivado/a en todas las etapas del proyecto de forma sostenida y asume el reto con entusiasmo	Se muestra motivado desde el principio aunque con algunos altibajos. Predomina una fuerte motivación general	Sólo está motivado en algunas actividades del Proyecto y no manifiesta mucho entusiasmo	Presenta una disposición negativa en todas las actividades del Proyecto.
	Trabajo grupal Trabajo en equipos	Se ha integrado y coordinado a la perfección con los demás miembros del grupo	Se ha integrado y coordinado en algunas actividades con los demás miembros del grupo	Sólo se ha coordinado correctamente en unas pocas actividades con los demás miembros del grupo	No ha trabajado en equipo
	Autonomía	Muestra una elevada capacidad de iniciativa y de autonomía en el desarrollo del proyecto.	Muestra una elevada capacidad de autonomía en el desarrollo del proyecto, aunque carece en parte de iniciativa.	Debería ampliar su nivel de iniciativa y autonomía para realizar el servicio y las tareas del proyecto.	Necesita una tutela prácticamente continua para realizar el servicio y las tareas del proyecto.
	Creatividad	Ha sido muy creativo en todas las actividades del proyecto	Ha sido creativo en casi todas las activades del Proyecto	Ha sido creativo en pocas actividades del Proyecto	No ha sido creativo
	Deontología	Sigue rigurosamente los principios de ética, confidencialidad y profesionalidad en todas sus actuaciones durante todo el Proyecto	Se ajusta a principios de ética, confidencialidad y profesionalidad en sus actuaciones en los dominios más sensibles del Proyecto	Sólo sigue parcialmente los principios de ética, confidencialidad y profesionalidad en sus actuaciones necesitando mejorar algunos aspectos	No sigue los principios de ética, ni de confidencialidad ni de profesionalidad en sus actuaciones en todo el proceso

ANEXO III: PUBLICACIONES
Publicación 1:

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A SERVICE-LEARNING PROJECT AS A TEACHING TOOL TO FIGHT AGAINST HYPERTENSION

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Abstract

Service-Learning (SL) is a pedagogical methodology that combines academic learning with real-world experiences in the Community. Empirical studies reveal that through SL, students gain practical skills, develop their career and personal interests, have more capacity for serving others and better understand the meaning of responsible citizenship. Our SL project entitled "Stopping Hypertension with SLP/UCM" is designed to contribute to the fight against hypertension, an important public health problem and one of the most important risk factors for cardiovascular disease and death. Self-measured blood pressure monitoring at home (SMBP) is an evidence-based strategy for the effective diagnosis, prevention, and control of hypertension. However, monitoring blood pressure at home is not easy and can be confusing. Because of this, new strategies are necessary to train the population in SMBP. Our SL project will provide an opportunity to link public health, the Community and the University for the promotion and support of SMBP. To implement our SL program, health sciences students from several degrees (Pharmacy, Medicine, Nursing, Physiotherapy, Podiatry, Odontology, Nutrition and Dietetics) have a chance to apply the blood pressure and hypertension curricular contents and collaborate to educate, train, and support the use of SMBP devices to the population, through the coordinated actions between Community organizations and the Complutense University (UCM). Thirty-eight teachers from Physiology Department of UCM will support faculty teaching by providing a real-world counterpart to the theoretical material discussed in the classroom. The UCM has agreements with Madrid City Council so that students can carry out their interventions in public health centers, such as care centers, pharmacies, health centers for the elderly, secondary schools and/or commercial centers. Students will give talks and informative workshops and they will demonstrate the correct use of clinically validated automated devices. Also, they will design easy guidelines, blood pressure record cards, posters, materials, videos through different online channels and scientific conferences. In addition, students will teach and advise the population to interpret the results and know when to go to the doctor. The service and learning process will be assessed by surveys to get the students, citizens, and teachers' opinions, and to improve the SL activities. This SL project will give to all health sciences students a real-world experience by having direct contact with patients/citizens, solving real community problems, carrying out a social service, and promoting personal skills and professional training. Also, it will help students to make connections between different academic subjects by using an interdisciplinary teaching approach. Our SL Project can be an effective way to improve the uncontrolled blood pressure control and to prevent hypertension. In this way, students will acquire curricular skills and serve the Community, promoting health and well-being to achieve the goals of the 2030 agenda for sustainable development.

Keywords: Service-learning project, real-world teaching methodology, hypertension, community service, design-teaching strategies.

1 INTRODUCTION

Service learning (SL) is a teaching tool that includes community service and academic learning in a single project. It is a combination of community involvement, academic study, and practical experience [1]. Thus, SL links two of the University's core goals, excellence in teaching and social responsibility. SL aims to connect a university with its local area and focus on the civic role of the university, strengthening the bond

between members of the university and the local population [2]. Students go out into the community to perform public service to groups, associations, organizations, or schools/institutes to learn as part of their degree while providing necessary services to the local population. Students are trained as they work to respond to real people needs in order to improve. Sabo et al. 2015 [3] defined SL as a form of community-centered experiential education that places emerging health professionals in community-generated service projects and provides structured opportunities for reflection on the broader social, economic, and political contexts of health. From this perspective, SL is a good methodology for teaching innovation that incorporates social responsibility into higher education [4], provides a platform to practice civic engagement, and allows students to be directly engaged in their communities. SL transcends specific fields and can be jointly used as an "interdisciplinary" teaching and learning tool in fields of health [5,6,7]. Teachers from the Department of Physiology at the Complutense University of Madrid (UCM) agree with this importance and provide our health education students the opportunity to participate in our community SL project. We have identified the social need generated by the population's lack of knowledge about hypertension. Our SL project entitled "Stopping hypertension with SLP/UCM" focuses on the fight against hypertension which is an important public health problem of global incidence. Self-measured blood pressure monitoring at home (SMBP) is an evidence-based strategy for the effective diagnosis, prevention, and control of hypertension. SMBP is effective in improving control of blood pressure and is part of current hypertension control guidelines. However, SMBP is not easy and can be confusing. In addition, there is a gap between communities and the health care system to improve an accurate and truthful blood pressure control. Because of this, the use of SMBP can be greatly improved. New strategies are necessary to train the population in SMBP. To achieve this goal, student volunteers participating in our project will follow the WHO's HEARTS and the Spanish Society of Hypertension (SEH-LELHA) technical specifications for automatic monitors and accurate SMBP in order to combat the high incidence of hypertension. Our SL project can be a cost-effective way to improve the uncontrolled blood pressure control and to prevent hypertension. So far, we are not aware of interventions or experiences that unify and link the learning of Physiology and, specifically, the SMBP, with the social commitment to provide a service to the community, improving health and well-being through training the population and social awareness. We expect that students will acquire curricular skills and serve the Community, promoting health and well-being to achieve the goals for the sustainable developments (SDGs) of the 2030 agenda.

2 METHODOLOGY

2.1 Participants

Stopping hypertension with SLP/UCM is an interfaculty and interdisciplinary protect. The participants that will allow its implementation are: 1) Health sciences students from various degrees such as Pharmacy, Medicine, Nursing, Physiotherapy, Podiatry, Dentistry and Nutrition and Dietetics from all courses. Thus, the project will represent a service-learning proposal that will allow the participation of students from different disciplines under a common structure; 2) The staff of the Physiology Department of the UCM. There are teachers, researchers, third-cycle students, technical and administrative staff; 3) The students carry out their service interventions in public health centers, such as health centers, pharmacies, health centers for the elderly, secondary schools and/or shopping centers where the UCM has agreements with the Madrid City Council. We want to indicate that carrying out the activities of our SL project will require a great effort and organization on the part of all the participants. Some of the institutional entities that support our project are the City Councils of Coslada, Alcorcón and Alcobendas of Madrid, Neurovida Centers for the Elderly, Faculty of Pharmacy of the Complutense University of Madrid, Spanish Society of Physiology (SECF), Spanish Society of Arterial Hypertension (SEH-LELHA) and professional associations of Pharmacy (COFM) and Nursing (CODEM) of Madrid. The blood pressure monitor companies, Beurer and Omron, will support us by partially subsidizing the purchase of the validated automated devices. We thank everyone for their participation, which makes this project viable.

This project has been granted and supported by ApS UCM projects in the 2022-2023 call. During this course, student's intervention will be carried out in the health centers for the elderly of several city councils of Madrid. The activities derived from the project will be carried out in *four phases* (Figure 1), which will be repeated during the two semesters of the year-long subjects.

2.2 Phase one - Student recruitment

Students will be requested to participate in "Stopping hypertension with SLP/UCM". For that, the project will be presented to students in the Physiology subjects from several health sciences degrees such as Pharmacy, Medicine, Nursing, Physiotherapy, Podiatry, Odontology and Nutrition and Dietetics. We will

present our project to the students in the first lecture of the course, and also in the virtual campus and the Project's web. It will be offered as an optional project from free choice credits (2ECTS) with a total of one hundred participating volunteers.

2.3 Phase two - Training and acquisition of knowledge.

In this phase, students are trained and taught so that they know the basic concepts of blood pressure, hypertension and SMBP. The whole group will receive two master classes where they will acquire knowledge about the physiology of the blood pressure and the importance of hypertension. All the activities' details will be explained. In addition, seminars/workshops on the accurate SMBP by using the clinically validated automated devices will be taught by the teachers of the Department of Physiology of the UCM and also by experts in hypertension, e.g. the President of the Spanish Society of Hypertension (SHE-LELHA) and his team. During this phase, various activities will be completed with the idea of learning to teach and gaining knowledge of the specific content of the workshops and lectures. After that, the students will be grouped into workteams of 5 people. The teams will gain more in-depth knowledge of the project and work with a teacher, who will act as a tutor, to plan their training, and the preparation of the activities and subsequent phases. Each participant's commitment and team working methods will be established. In addition, students will design easy guidelines and blood pressure record cards and also, they will produce dissemination materials and videos that will be shared through different online channels, webs, social networks, scientific conferences, etc… These training activities will be evaluated through an online test in the virtual campus and the tutors will also assess the knowledge acquired and the activities carried out according to a rubric. This rubric considers items to evaluate the acquisition of curricular and transversal competences. The evaluation criteria will be published.

2.4 Phase three - Implementing the service in the Community

In this phase, the students will carry out the service activities. They will go with the tutor to visit the centers for the elderly, interview the seniors and plan interventions. They will give talks, informative workshops and demonstrate the correct use of clinically validated automated devices. They will also teach and advise the population to interpret the results and know when to go to the doctor. After student interventions, individuals will feel more confident to use their devices and know the interpretation of the monitor reading. During the intervention period, students will collect the completed questionnaires of satisfaction of the elderly who have received the service for subsequent analysis and evaluation. This project has the approval of the UCM´s Ethics Committee.

2.5 Phase four - Reflection and conclusions

During this period, students will assess what they have learned. They will perform in-depth evaluations of what and how they learn. During this phase, a mentoring session including a joint evaluation and finalization of all the work done will be held each semester. The project will be successfully completed, and methods will be put forward for disseminating the results. In addition, questionnaires to assess prior knowledge and satisfaction surveys will be analyzed. Finally, there will take place a final celebration for the recognition of the students' learning.

Figure 1 shows the four phases of the activities derived from the Stopping Hypertension with SLP/UCM project.

3 RESULTS

Our SL project presents a mutually beneficial approach, increasing students' social awareness and at the same time, delivering essential supervised healthcare to local communities. Based on our objectives, we intend to achieve several goals for service learning:

1 To enhance learning by linking theory and practice, by acquiring curricular and transversal learning.

2 To learn concepts, abilities and attitudes based on community service by transmitting the knowledge on hypertension and SMBP to population.

3 To establish an enriching educational relationship between teachers and students of different degrees.

4 To acquire professional health education skills by participating in SMBP training of the elderly and in topics related to hypertension.

5 To acquire teamwork skills based on collaborative participation in the project.

6 To help develop greater social awareness and civic skills by serving the community, achieving the SDGs of the 2030 Agency.

3.1 Acquiring curricular Learning

Students will acquire curricular knowledge about blood pressure physiology and hypertension pathophysiology from the master classes and seminars/workshops on the accurate SMBP, that will be taught by the teachers of the Department of Physiology of the UCM and experts in hypertension from SHE-LELHA. Our SL project is based on students' experiences through structured reflective activities. The students will perform a literature search, which will allow them to choose content and prepare audio-visual presentations and informative documents to be used on the service days such as explanatory leaflets or blood pressure record forms. It will promote skills, creativity and originality acquired in the design of informative materials. In addition, the students will prepare the interview to the elderly, the script of questions to ask and the assessment of specific needs and resources at each senior center. The teachers through direct supervision of the students will evaluate students' learning as they prepare and make the promotional and informational materials. Students will engage in prior practical learning of techniques of SMBP and the use of tensiometers, and thus learn to carry out these techniques, demonstrate them and guide to population in performing them as well. The fact that students learn to teach others help them achieve a very high level of knowledge, in order to convey the information properly. A teacher expert in the topic will supervise students´ learning to provide ongoing feedback that can be used to improve their training. The students will acquire skills in guiding the practical activity of the workshops and lectures on SMBP and hypertension. In addition, we expect an impact on promotion of scientific interest by interpreting the results and publishing them in scientific journals and conferences.

3.2 Acquiring transversal Learning

Our SL will improve students' learning outcomes and contribute to their personal and social development. The students' experience will have positive effects on their interpersonal development, ability to work well with others, leadership, and communication skills, as well as their sense of citizenship responsibility commitment to service and social skills. Likewise, we expect an impact on the development of critical and reflective thinking, the perception of possibilities for social change based on collective effort and the exercise of active citizenship. SL increases students and faculties engagement in their communities, strengthening the relationship between academic institutions and their communities. Community members also benefit from the additional resources provided by student service and our university expertise, and gain opportunities to investigate community issues that they might not otherwise have the resources to address, thereby improving university relations and supporting the civic engagement mission of universities. In addition, students will be trained in communication and public speaking skills required for proper community service and encouraging communication skills in public. This training will be carried out jointly with students from other faculties. Teamwork skills will develop with the understanding that these skills not only teach the individual to work as part of a team, but also improve the quality of the service provided. In addition, the methods and techniques of health education will be chosen based on the content, the group to which the intervention will be directed and the resources of the centers for the elderly, previously evaluated during the visits. Furthermore, methods and techniques for health education will be chosen according to content, the group for which the intervention will be intended and the senior centers' resources, previously assessed

on the visits. We also want to promote shared and active participation between teachers and students and the social entities involved.

3.3 Work Service

The acquisition of personal and professional skills, solving real problems by performing a social service is one of our objectives. We expect that our SL project improves students' learning outcomes and contributes to students' personal and social development. Health sciences students will collaborate to educate, train, and support the use of SMBP devices through the coordinated actions between community organizations and the UCM. The UCM has agreements with Madrid City Councils so that students can carry out their interventions in public health centers, such as hospitals, care centers, pharmacies, health centers for the elderly, etc..., as well as in other centers such as secondary schools or commercial centers. In this way, the students serve the community and cover this social necessity. This project will provide an opportunity to link public health with the community and university for the promotion and support of SMBP. Students experience will be a positive effect on their interpersonal development, ability to work well with others, leadership and communication skills, as well as on their sense of social responsibility, citizenship skills and commitment to service. Studies also will reveal a clear impact on understanding and application of knowledge, promotion of scientific interest, development of critical and reflective thinking, perception of possibilities for social change based on collective effort, and exercise of an active citizenship. Learning is based on student experiences and throughout structured reflection activities. SL increases students and faculty participation in their communities, strengthening the relationship between academic institutions and their communities. Community members also benefit from additional resources provided by student service and from faculty expertise, and gain opportunities to research community problems they might otherwise not have the resources to undertake, thus enhancing university relations and supporting the civic engagement mission of universities.

3.4 Achieving the Sustainable Development Goals (SDGs)

The 2030 Agenda for Sustainable Development has highlighted the diversity and seriousness of the problems that put the planet and humanity at risk at this time. Higher Education Institutions have a critical role in helping society achieve the SDGs. Universities are called upon to respond to all these challenges and to promote the adoption of new teaching methodologies that increase their social commitment and contribution to sustainable development. Promoting SL activities at universities effectively address the SDGs. Our SL Project is a convergent strategy that integrate the two fields, education and health, in pursuit of the UNESCO's SDGs. We want to achieve two sustainable development goals in our SL projects, they are: number 3-Good health and well-being "Ensure healthy lives and promote well-being for all at all ages" and number 4-Quality education, "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all." By promoting education and training plus health and well-being, we are contributing to the fulfillment of the SDGs of the 2030 agenda.

3.5 Evaluation

In order to identify possible improvements and to know results and performances achieved with the activities of our SL project, qualitative and quantitative measurement will be analyzed. For this purpose, we will elaborate several surveys trying to collect assessments of the participants´ experiences. Therefore, both the students and the seniors from entities for the elderly, and its own staff will carry out their corresponding surveys.

4 CONCLUSIONS

Developing Stopping Hypertension SLP/UCM project with undergraduate students of health science degrees in collaboration with surrounding entities focused on teaching to people the accurate SMBP and could be a powerful teaching tool to fight against hypertension, to improve the education of future professionals and to make society more aware of the serious health problem posed by hypertension. We expect that university students and teachers improve their knowledge, learning abilities, and attitudes. SL methodology will allow the students to simultaneously learn and provide an educational service to the community and have a great educational and personal experience. Our SL Project can be an effective way to improve the uncontrolled blood pressure control and to prevent hypertension. In this way, students will acquire curricular skills and serve the Community, promoting health and well-being to achieve the goals of the 2030 agenda for sustainable development.

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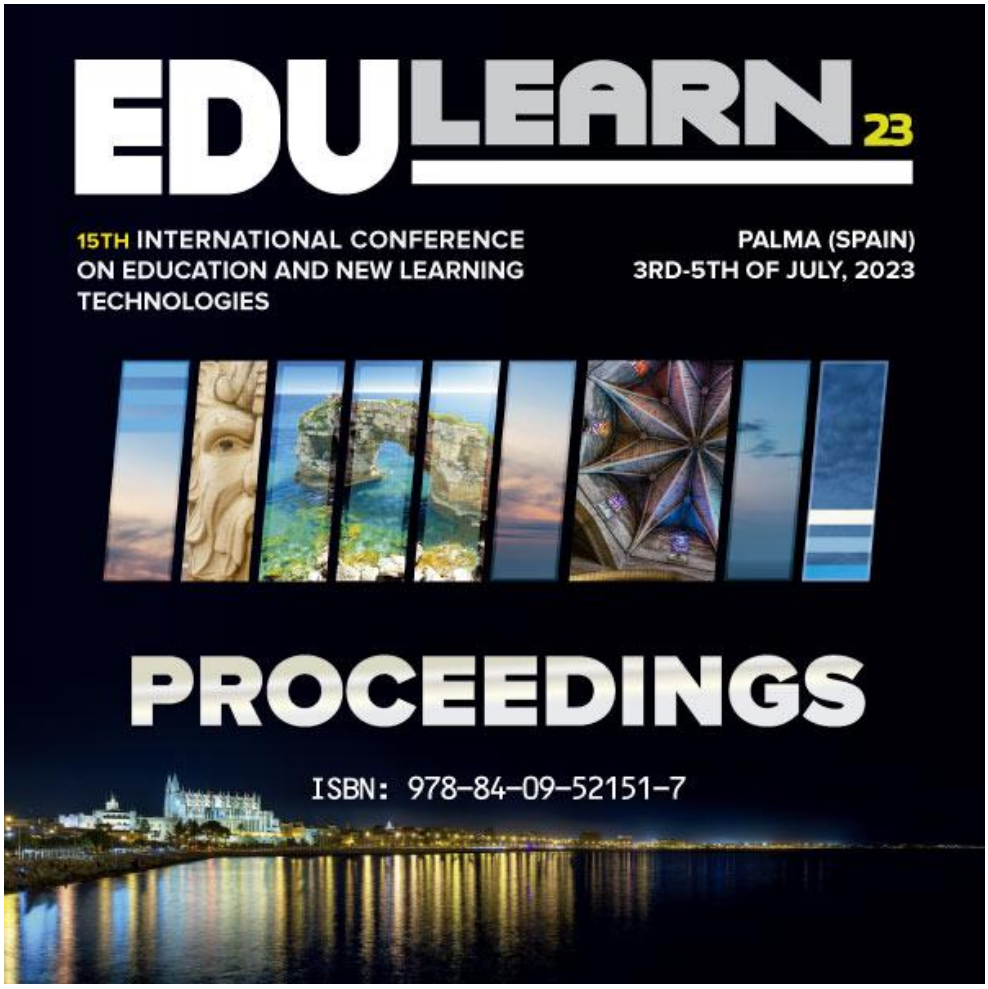

CREATING A RUBRIC FOR THE STOP HYPERTENSION SERVICE-LEARNING PROJECT

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Abstract

Service-learning (SL) is a form of experiential education in which students engage in activities that address human and community needs together with structured training to promote student learning and development. Reflection and reciprocity are key concepts of SL. SL combines academic learning with real-world experiences in the Community. This is accomplished by combining service tasks with structured opportunities that link the task to self-reflection, self-discovery, and the acquisition and comprehension of values, skills, and knowledge content. Our SL project entitled "Stop Hypertension with SL/UCM" has been designed to contribute to the fight against hypertension, an important public health problem and the most important risk factor for cardiovascular disease and death. Students from different Health sciences degrees (Pharmacy, Medicine, Nursing, Physiotherapy, Podiatry, Odontology and Nutrition, and Dietetics) had the opportunity to apply the blood pressure (BP) and hypertension curricular contents and collaborate in educating and training the population on self-measured BP monitoring at home (SMBP), through the coordinated actions between Community organizations and the Complutense University of Madrid (UCM). Stop Hypertension SL Project is an effective way to improve uncontrolled BP early detection and prevent hypertension. In this way, students acquire curricular skills and serve the Community, promoting health and well-being to achieve the 2030 agenda sustainable development goals. The activities derived from the project were carried out in four phases: 1) students' recruitment, 2) students' training and acquisition of knowledge, 3) implementing the service in the Community, and 4) reflection and conclusions. To provide feedback on the methods of assessing students' experiential service and learning, we developed a checklist or rubric. This rubric has been designed as a tool that permits: a) students to know the specific criteria on which their work will be evaluated, so that both they and their instructors have a common understanding of the assignment expectations, b) an awareness of the students' self- or peer-assessed work prior to submitting it, potentially resulting in higher quality submissions, c) the offering of a systematic approach for providing feedback, d) students to see their strengths and possible areas for improvement, e) instructors to measure teaching, and f) instructors to devise a continuum of a single SL activity that may grow and develop over subsequent years to maintain a tradition of sustainability that expands outside of the classroom and engages the various audiences of the SL system. In addition to the academic achievements, the current rubric evaluates student progress during community service. For each assignment, the assessment criteria ensures that data collection and identification, and implementation of interventions designed comply with the Community needs as well as guarantees an improvement of

the student learning process This rubric in turn can explain, stimulate, and assess student learning and development in the transdisciplinary and sustainable Stop Hypertension SL Project.

Keywords: rubric, Service-learning project, real-world teaching methodology, hypertension, community service.

1 INTRODUCTION

Service Learning (SL) is an educational method that explicitly promotes cooperation between the academic community and the civil sector, putting student and community engagement at the centre of the learning experience [1]. It also directly facilitates the development of social responsibility of students and other members of the academic community in solving real specific social problems. It involves structured and graded student placements in organisations in response to the needs of the community [2]. The benefits of SL must equally affect students, the university, and the community. Students get insight into many ways to apply their academic knowledge and see how it can positively affect the selected community. On the other hand, teachers get a more detailed insight into students' talents and abilities, which are not always easily recognizable in the "traditional" educational environment. Finally, the chosen community has the chance to reconnect with the knowledge within the educational system [3]. The identification of the real needs of the community, the reciprocity between the parties involved, i.e. students, faculty / institution of higher education and the community, and the reflection, that ensures the connection between the commitment and the educational content, are the fundamental pillars on which the success of the SL depends [4]. The implementation of SL programs requires careful planning and organization, and a specific assignment of activities and tasks to students and teachers, that can become a great challenge for the stakeholders involved [3][5].

"Stop Hypertension with SL/UCM" is a SL project designed to contribute to the fight against hypertension, an significant public health problem and the principal risk factor for cardiovascular disease and death. Students from several Health sciences degrees (Pharmacy, Medicine, Nursing, Physiotherapy, Podiatry, Odontology and Nutrition, and Dietetics) are empowered on the blood pressure (BP) and hypertension curricular contents and collaborate to educate, train, and support the population on the learning of self-measured BP monitoring at home (SMBP), through the coordinated actions between Community organizations and the Complutense University of Madrid (UCM). Stop Hypertension SL project has turned out to be effective in the early detection of hypertension, having a significant impact on public health [6]. Also, it allows students to work closely with community organizations and obtain practical and professional experience regarding the course objectives. Stop Hypertension SL can be presented by the diagram below (modified from Fresno State University [7]) (Figure 1), which shows the position of SL at the overlap of academic learning, practical experience, and community engagement, student practice, student volunteering, and civic education.

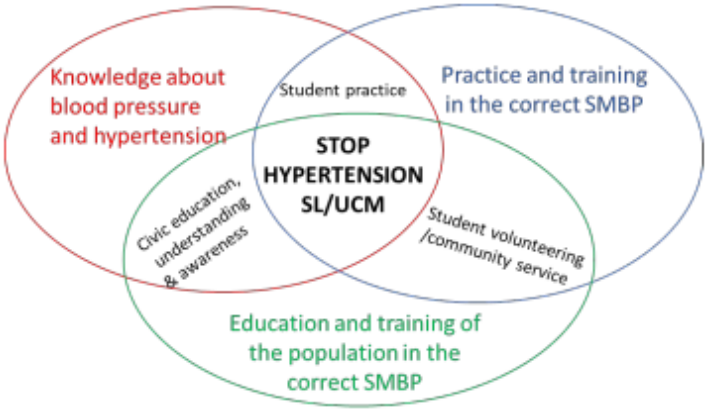

Figure 1. Stop hypertension SL diagram, modified from Fresno State University [7]

This SL project is configured by multiple practical activities with pedagogical aspects that converge in interdependent dimensions that reinforce each other [6]. Therefore, each experience shows a unique reality difficult to assess, making necessary a specific rubric. A rubric is a simple and useful tool designed to facilitate self-assessment and improve service-learning experiences [7], which main utility is to

analyze and discuss in detail the pedagogical characteristics of service-learning experiences [8][9]. Its use allows establishment of a set of criteria that measure task development and progression and promote the alignment between task design and curricular objectives [10], and the development of students' integrated skills [11]. This tool defines in writing that the student is expected to reach a specific grade on an assignment and is designed to measure the state of the SL at any given time [7]. The results of this evaluation can provide useful information for the development of an action plan and feedback to advance service-learning. It can help identify which project components or dimensions are progressing effectively and which ones need additional attention [11]. In addition, using this tool at a later to reassess the status of the project is of great advantage in evaluating the actual growth of each component and dimension over time [9][12]. All stakeholders can benefit from using and reflecting on the results of the rubric. Students highly appreciate the value of rubrics since they clarify the targets of their work, allow them to adjust their progress, and make grades and marks transparent and fair [12]. Rubrics allow instructors to reliably assess performance and identify changes and improvements in SL experiences delivery and design [13]. Through the analysis of the rubric, the professionals of the entities involved in a service experience can analyze and reflect on their role in the project they are promoting [14]. To provide feedback on the methods of evaluating service and learning that our students have experienced, we have developed a checklist or rubric. This article describes the dimensions and levels of our service-learning rubric which has allowed us: a) to identify strengths and weaknesses of our service-learning activities, b) to facilitate the pedagogical debate, c) to optimize activities, d) to encourage the implementation of new activities, and e) to evaluate the progress of our SL project students over time.

2 METHODOLOGY

2.1 Stop hypertension SL program

The activities derived from the project were carried out in four phases [6]:

1 Student recruitment. The project was presented to students of eight health sciences degrees: Pharmacy, Medicine, Nursing, Physiotherapy, Podiatry, Odontology, Nutrition and Dietetics, and Pharmacy and Nutrition/Dietetics during the first lecture of the course, and also on the virtual campus and the project's web. It is offered as an optional website. Participation in the project was voluntary and completion of the program was recognized with two free choice credits (2 ECTS). A total of one hundred and twenty students followed the program in the first edition.

2 Students' training and acquisition of knowledge. Students were trained and taught to know the basics of BP, the social impact of hypertension, and SMBP. They received master classes given by professors from the Department of Physiology of the UCM, and also from experts in the field of hypertension such as facultative, members of the Spanish Society of Arterial Hypertension (SHE-LELHA), and the leader of the PAHO/WHO HEARTS strategy for the fight against hypertension. The knowledge was consolidated through the design of informative materials that were carried out in groups of 5 or 6 students.

3 Implementing the service in the Community. The students carried out public service activities. They visit, always accompanied by a tutor, senior elderly homes, health associations, or health campaigns of Madrid town halls. They gave talks and informative workshops and demonstrated the correct use of clinically automated devices. They also taught and advised the population to correctly interpret the results and know when to visit a doctor. During the intervention period, the students collected the satisfaction questionnaires filled in by the elderly senior participants that received the service for later analysis and evaluation. This project has the approval of the UCM Ethics Committee to collect data from population.

4 Reflection, conclusions, and celebration. Students evaluated what they learned. They made in-depth assessments of what and how they learned. A mentoring session exposed a joint evaluation and completion of all the work carried out. In addition, questionnaires and records of the data are collected and satisfaction surveys were analyzed. Finally, there was a final celebration for the recognition and reflection on the learning and service carried out by the students.

2.2 Constructing a rubric for Stop Hypertension SL

To create the current rubric, we relied on its simplest form, that is, a description of tasks or dimensions encompassed in categories, and a scale with levels of achievement and descriptions of what constitutes each level of performance, which allows for specific feedback. The dimensions were pedagogical

elements that, organized and interrelated, presented a global vision of the service-learning experiences [11,15]. Since composing a rubric is not an easy task, we followed four sets five steps as suggested by Popham [8] and Stevens and Levi [9] to create our own rubric:

Step 1- Reflection: In this first stage of building the Stop Hypertension SL rubric, instructors and educators reflected on what they wanted students to know and what criteria or essential elements must be present in the student's work to ensure its excellence.

Step 2- Listing: Identification of the dimensions/tasks comprising the performance. In the second stage, the detailed objectives of the project are defined. We started by identifying the dimensions on which a student activity or artifact (e.g., an assignment) would be evaluated. They could be specific tasks, or a variety of intellectual or cognitive competencies that target a specific academic item or involve service activities. In this way, we were able to define the set of learning and service objectives for the project, as well as clearly define descriptions of how the "best" outcome would look like.

Step 3- Grouping: Once the learning-service objectives or dimensions were identified, prioritized, and listed, we grouped them into two large categories: 1) Learning and service evaluation and 2) Evaluation of acquired transversal competencies.

Step 4- Scoring: Identification of the potential gradations of the quality. At this point, we added the levels to each dimension of the rubric. We started with the highest expectations and defined the highest level on the scale. Below we described what we considered the minimum acceptable for the task. This was the criteria for the lowest level. Between them, the intermediate levels were defined.

Step 5.- Creating a rubric graph. The representation of dimensions and levels in a radar graph allowed us to assess student activities at a glance.

3 RESULTS

To evaluate and examine all the service-learning experiences, the Stop Hypertension SL rubric was organised into fourteen dimensions and four levels or components. Each dimension had four levels scores on a 0-3 scale that indicated the degree of its pedagogical development, being 0-inadequate, 1-needs work, 2- satisfactory, and 3-excellent. Each level was considered pedagogically superior to the previous one. Thus, the first level (0-inadequate) indicated minimal and unorganized presence of the dimension, while the fourth level (3- excellent) described its maximum possible presence or involvement [14]. Moreover, dimensions were grouped into two categories. The dimensions categorized with their levels identifying the potential gradations of the quality are described below.

3.1 Learning and Service Evaluation

This category grouped dimensions which represent learning based on knowledge, skills, behaviours, and values acquired for the training and empowerment of students in SMBP by carrying out the public service and/or their involvement in activities of the project.

3.1.1 Knowledge acquired

This dimension made possible to evaluate the training and empowerment of students in the SMBP. Students became aware of the impact that high BP has on public health and the importance that their intervention had in the Community. Students acquired knowledge from master classes and workshops given by experts from the Spanish Society of Hypertension (SEH-LELHA), from the leader of PAHO/WHO HEARTS strategy, and from instructors from the Department of Physiology from Complutense University of Madrid. Students were also requested to do a bibliographic search in the subject, promoting self-learning. The knowledge acquired was evaluated by using a multiple-choice test that is available through the virtual campus.

Scores were: *excellent* (3) if students answered correctly to 80-100% of the questions asked; s*atisfactory* (2) if they answered correctly between 60-79% of the questions asked; *needs work* (1) if they answered correctly between 50-59% of the questions asked; and *inadequate* (0) if they answered correctly between 0-49% of the questions asked.

3.1.2 Design of promotional and dissemination materials

Students designed dissemination materials, videos, easy guidelines, and BP record cards that were shared through different online channels, websites, social networks, scientific conferences, etc. All

designed materials were exhibited on the virtual campus, and they were voted by all participants of the project to decide which ones best represented the activities of the project in its first edition. The training of these activities was evaluated by an instructor who was the tutor of five-six grouped students.

Scores were: *excellent* (3) if students correctly made all the materials proposed during the project in a critically and reflectively, providing guidelines for improvement; *satisfactory* (2) if they made all the materials proposed during the project, although some needed a greater degree of elaboration; *needs work* (1) if they made the proposed materials in a partial and little elaborated way; *inadequate* (0) if they did not make the materials proposed in the project.

3.1.3 Service in health campaigns

Students participated in health campaigns promoted by city councils and the University itself, achieving public engagement and being useful to the community. These activities are evaluated by the instructor who accompanies students during public service.

Scores were: *excellent* (3) if students participated actively and fully in all the activities of the campaign; *satisfactory* (2) if they participated in most of the campaign activities; *needs work* (1) if they participated in some of the campaign activities; *inadequate* (0) if they did not participate in campaign activities.

3.1.4 Service to collectives vulnerable of suffering arterial hypertension

This dimension evaluated student progress during community service. The students carried out service activities in centres for the elderly and health associations in the community of Madrid. A tutor instructor accompanied the group of students in the centres elderly homes, planned interventions, and evaluated student's service. Students gave talks and informative workshops and demonstrated the correct use of BP monitors. They also taught and advised the population how to correctly interpret the results from the measurements obtained and know when to visit a doctor.

Scores were: *excellent* (3) if students had an active and very effective participation in the group doing the service in the community centres; *satisfactory* (2) if they participated effectively in any of the activities carried out in the centres where the service was carried out; *needs work* (1) if they partially participated in the activities that were carried out in the centres; *inadequate* (0) if they did not participated in this activity.

3.1.5 Tutorials and deadlines

Tutorials allowed instructors to control the development of both group and individual learning by supervising all of the project activities and to give feedback to the students. Programmed tutorial sessions allowed students and tutors to organize and plan workshops and talks to ensure the acquired knowledge.

Scores were: *excellent* (3) if students successfully participated in all scheduled tutoring sessions; *satisfactory* (2) if they participated adequately in the tutorials, although on some occasion they were late and did not adequately justify it; *needs work* (1) if they attended tutorials on occasions and/or showed a small justified delay in deliveries (no more than two days); *inadequate* (0) if they did not attend the tutorials or they showed little interest and/or an unjustified and notable delay in deliveries.

3.1.6 Results and findings

During the intervention period, students collected BP data and filled-in questionnaires of satisfaction from questionnaire filled in by the seniors or participants who received the service for subsequent analysis and evaluation. Students' had the opportunity to analyse the data obtained from the public service that helped students to realize the effectiveness of their intervention and allow them to reflect on the impact of their activities on public health. This project has the approval of the UCM´s Ethics Committee to collect data from the population.

Scores were: *excellent* (3) if students successfully collected and analyzed all the results obtained in all activities; *satisfactory* (2) if they collected and analyzed some of the data obtained in all the activities; *needs work* (1) if they collected and partially analyze analyzed few results in any of the project activities; *inadequate* (0) if they did not record or collect results.

3.1.7 Transfer and dissemination of results

In each entity, students have collected the BP records from the users and have included them in a database designed for this purpose. Subsequently, after analysis of the data and drawing conclusions, students will be able to send communications to conferences and publish papers in specialized journals. They will be guided by teachers.

Scores were *excellent* (3) if they collected data and participated in all conferences proposed for the dissemination of results; *satisfactory* (2) if they collected data and participated in some of the conferences proposed for the dissemination of results; *needs work* (1) if they only collected data; *inadequate* (0) if they did not participate in this activity.

Table 1. Rubric showing dimensions and levels of the "learning and service evaluation" category.

		Dimensions	Excellent (3)	Satisfactory (2)	Need work (1)	Inadequate (0)
Learning and Service Evaluation	1	Knowledge acquired	Answer correctly to 80-100% of the questions asked	Answer correctly between 60-79% of the questions asked	Answer correctly between 50-59% of the questions asked	Answer correctly between 0-49% of the questions asked.
	2	Design of promotional and dissemination materials	Correctly make all the materials proposed during the project in a critical and reflective way, providing proposals for improvement	Make all the materials proposed during the project, although some need a greater degree of elaboration	Make the proposed materials in a partial and little elaborated way	Do not make the materials proposed in the Project.
	3	Service in health campaigns	Participate actively and fully in all the activities of the campaign days	Participate in most campaign activities	Participate in some of the campaign activities;	Do not participate in campaign activities
	4	Service to collectives vulnerable of suffering arterial hypertension	Have an active and very effective participation in the group doing the service in the community centres	Participate effectively in any of the activities carried out in the centers where the service is carried out	Partially participate in the activities that are carried out in the centers where the service is carried out	have not participated in this activity
	5	Tutorials and deadlines	Successfully participate in all scheduled tutoring sessions and material deadlines.	Have participated adequately in the tutorials, although on some occasion they have been late or have not adequately justified it	have attended tutorials on occasions and/or have shown a small justified delay in deliveries (no more than two days)	Have not attended the tutorials or they have been carried out with little interest and/or they have shown an unjustified and notable delay in deliveries.
	6	Results and findings	Successfully collect and analyze all the results obtained in all activities	Have collected and analyze some of the results obtained in all the activities of the Project;	Collects and partially analyzes few results in any of the project activities	Do not record or collect results.
	7	Transfer and dissemination of results	Collect data and participate in all conferences and congresses proposed for the dissemination of results	Collect data and participate in some of the conferences and congresses proposed for the dissemination of results	Only collect data	Do not participate in this activity

3.2 Evaluation of acquired transversal competences

Our SL project improved students' learning outcomes and contributed to their personal and social development. The students' experience has positive effects on their interpersonal development, ability to work well with others, leadership, and communication skills, as well as their deontological sense of citizenship responsibility, commitment to service, and social skills. The dimensions and levels grouped in this section address the transversal educational cut across different professional tasks and job roles such as participation, group work, reflection, critical judgment, and recognition that make up our SL project.

3.2.1 Reflection and critical capacity

This SL project promoted both content and process knowledge, as well as development of socially relevant knowledge in students. The reflection activities involved the student in the examination and analysis of the relationship between social service and the application of the knowledge acquired in a curricular discipline, having a positive impact on their academic, social, moral, personal, and civic formation. It strengthened critical thinking that supported complex problem-solving and fostered a broader understanding of service recipients. The celebration, where all the project participants met, contributed to the final reflection. This dimension was evaluated by an instructor teacher who followed the student activities.

Scores were: *excellent* (3) if the reflection on the project's activities was very appropriate, showing a critical spirit and continuous improvement (Students analysed, identified, understood, and evaluated all situations that allowed them to make the best decisions); *satisfactory* (2) if they showed a correct reflection process, although their self-critical spirit or the lines of improvement to adopt could increase; *needs work* (1) if their reflection was poor, highlighting a low capacity for self-criticism and without proposing relevant lines of improvement (They partially analyse analysed few of the project's situations); *inadequate* (0) if they did not reflect and showed no critical capacity.

3.2.2 *Ability to communicate and express in public*

Students were trained and encouraged in communication and public speaking skills required for proper community service During the workshops, the importance of hypertension in public health were highlighted during a presentation or video and later, in a personalized way, the students trained the participants in the correct measurement of BP and SMBP. The student's communicative ability to convince the public was essential for the success of the project.

Scores were: *excellent* (3) if they developed excellent communication strategies that convinced the public in all activities; *satisfactory* (2) if they developed good communication strategies that convinced the public in all activities; *needs work* (1) if they developed some strategies but did not convince the public in all activities; *inadequate* (0) if they did not develop strategies that improve their ability to communicate and express themselves.

3.2.3 *Motivation*

Students' motivation played a main role in controlling and directing our activities and tasks. In general, our students participate highly motivated since they voluntarily chose to join this project. Their enthusiasm and motivation were essential to performing public service and delivery to society. Their attitude consolidates their projection as future health professionals.

Scores were: *excellent* (3) if they were very motivated in all the stages of the project in a constant way and assumed the challenge with enthusiasm; *satisfactory* (2) if they were motivated from the beginning although with some ups and downs (a strong motivation predominated); *needs work* (1) if they were only motivated in some project activities and did not show much enthusiasm; *inadequate* (0) if they showed a negative disposition in all project activities.

3.2.4 *Team work*

This project played a significant role in further developing team-working skills among the students. Most academic and service tasks were carried out in groups of 5 or 6 students from different health degrees. Students generally listen listened to, shared with, and supported the efforts of others triedencouraging others topeerswork well together.

Scores were: *excellent* (4) if they demonstrated ability and commitment to collaborative work across and within group contexts and structures to achieve a common aim; *satisfactory* (3) if they often demonstrated ability and commitment to work actively within group contexts and structures to achieve a common aim; *needs work* (2) if they occasionally demonstrated ability and commitment to work actively within group contexts and structures to achieve a common aim; *inadequate* (1) if they did not demonstrate any ability to identify intentional ways to participate in group contexts.

3.2.5 *Individual contributions outside of the team. Autonomy.*

Individual contributions to the project by doing thorough, meticulous, and complete work moves the project forward. Practical assistance to other team members in completing their assigned tasks with a similar level of excellence contributed to the success of the activity. Getting students to be independent and resourceful in solving problems that commonly arise in real life was one of the formative objectives of this project.

Scores were: *excellent* (3) if they showed high level of autonomy and made decisions and acted independently without direct supervision; *satisfactory* (2) if they showed a good level of autonomy and made some decisions without direct supervision; *needs work* (1) if they showed a low level of autonomy and made very few decisions without direct supervision; *inadequate* (0) if they were not able to make decisions and needed supervision.

3.2.6 *Creativity*

In this dimension, students' creativity in the project activities was highly valued. In general, the ideas/materials/methods used by the students were novel, impactful, and highly effective, and were marked by great imagination, insight, style, and boldness. The creative student assumes risks of form, style, and/or content in training and service activities. This dimension was evaluated by tutors and the best materials were voted by all members of the SL team.

Scores were: *excellent* (3) if the work was creative and the ideas/materials/methods used were effective; *satisfactory* (2) if the work was somewhat creative and the ideas/materials/methods used showed signs of imagination and personal style; *needs work* (1) if students' work was not very creative and the

approach was trite and the ideas clichéd, leading to a flat and predictable performance; *inadequate* (0) if the work was uncreative and the performance recreated someone else's work or relied exclusively on the models/materials provided.

3.2.7 *Deontology*

Training students is essential in advancing medical/health knowledge and expanding and promoting health services by learning the principles, values, norms, and professional standards.

Scores were: *excellent* (3) if students observed the principles of ethics, confidentiality, and professionalism in all their actions throughout the process; *satisfactory* (2) if conformed to principles of ethics, confidentiality, and professionalism in their actions in the most sensitive domains of the project; *needs work* (1) if only partially followed the principles of ethics, confidentiality, and professionalism in their actions, needing to improve some aspects; *inadequate* (0) if did not follow the principles of ethics, confidentiality or professionalism in their actions.

Table 2. Rubric showing dimensions and levels of the "evaluation of acquired transversal competences" category.

		Dimensions	Excellent (3)	Satisfactory (2)	Need work (1)	Inadequate (0)
Evaluation of acquired transversal competences	8	Reflection and critical capacity	It is very appropriate, showing a critical spirit and continuous improvement. Students analyse, identify, understand, and evaluate all situations that allow them to make the best decisions;	Show a correct reflection process, although it could increase their self-critical spirit or the lines of improvement to adopt	Poor reflection, highlighting a low capacity for self-criticism and without proposing relevant lines of improvement. They partially analyse few of the project's situations.	Do not reflect and have no critical capacity.
	9	Ability to communicate and express in public	Excellent communication strategies that have convinced the public in all activities	Good communication strategies that have convinced the public in all activities;	Have developed some strategies but have not convinced the public in all activities; actividades	Have not developed strategies that improve their ability to communicate and express themselves.
	10	Motivation	Show motivated in all the stages of the project in a constant way and assumes the challenge with enthusias	Show motivated from the beginning although with some ups and downs. A strong general motivation predominates	Show only motivated in some project activities and do not show much enthusiasm;	Show a negative disposition in all project activities
	11	Work team	Demonstrate ability and commitment to collaboratively work across and within group contexts and structures to achieve a common aim	Often demonstrates ability and commitment to work actively within group contexts and structures to achieve a common aim	Occasionally demonstrates ability and commitment to work actively within group contexts and structures to achieve a common aim	Do not demonstrate any ability to identify intentional ways to participate in group contexts.
	12	Individual contributes outside team. Autonomy.	Show high level of autonomy and make decisions and act independently without direct supervision.	Show good level of autonomy and make some decisions without direct supervision.	Show low level of autonomy and make very few decisions without direct supervision.	Are not able to make decisions and need supervision.
	13	Creativity	Work is creative. The ideas/materials/methods used are effective. The ideas/materials/methods used show signs of imagination and personal style	The work is somewhat creative. The ideas/materials/methods used show signs of imagination and personal style.	Work is not very creative. The approach is trite and the ideas clichéd, leading to a flat and predictable performance	Work is uncreative and the performance recreates someone else's work or relies exclusively on the models/materials provided.
	14	Deontology	Follow rigorously the principles of ethics, confidentiality and professionalism in all its actions throughout the process	Conform to principles of ethics, confidentiality and professionalism in their actions in the most sensitive domains of the project	Only partially follows the principles of ethics, confidentiality and professionalism in its actions, needing to improve some aspects	Do not follow the principles of ethics, confidentiality or professionalism in their actions.

3.4 Creating a rubric graph

Radar plots are used to represent the results in a rubric-based evaluation in order to supply information that allows extracting knowledge about the learning and teaching processes [16]. The axes of the plot correspond with the dimensions of the rubric, and the different performance levels form the scale. They add to the previous tables (Tables 1 and 2) the possibility of visualizing the level of development reached by each dynamism in a very clear way, as well as the total area of the complete activities of the project, showing its potential for growing [16]. Figure 2 shows an example of the results of a rubric to evaluate students' activities, where dimensions and levels included in the two categories are taken into account. This chart allows the student to visualize if their/her work is regular in all the evaluated dimensions and underscores those aspects that stand out (blue in Figure 2). Furthermore, it allows the student to compare their own achievement in each dimension with the results achieved overall (red in Figure. 2). This graph is insightful for teachers to know the performance of the students and allow them to reinforce the efforts in those areas and groups with the lowest results to improve pedagogical and/or service interventions.

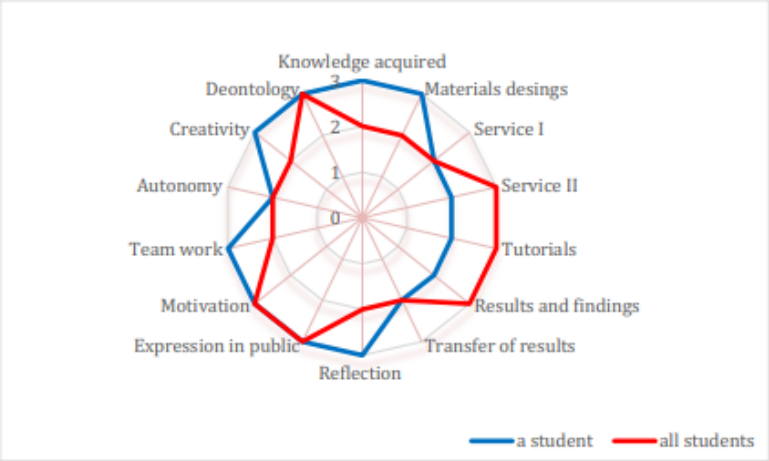

Figure 2: Radar graph representing the dimensions and levels of the Stop Hypertension SL rubric from a student (blue line) and all students (red line).

4 CONCLUSIONS

"Stop Hypertension with SL/UCM" is a potent and novel pedagogy tool designed to contribute to the fight against hypertension. It is configured by multiple practical and service activities with pedagogical aspects that converge in interdependent dimensions that reinforce each other. The rubric designed for the Stop Hypertension SL project has allowed the analysis and evaluation of each one of the dimensions that make up our service-learning project. The application of this rubric and its representation might be a promising starting point to initiate an internal evaluation, optimization, and innovation of our service-learning project.

The current rubric has many benefits including. 1) Defining clear and specific criteria against which students' work can be assessed, aligning students' and instructors' work expectations. The criteria are related to the desired learning outcomes from the experience/task. 2) Allowing students and their peers to self-assess their work, leading to higher quality learning outcomes. 3) Offering a systematic approach that provides immediate feedback. 4) Identifying students' strengths and areas needed for improvement. 5) Facilitating the pedagogical debate among the members of the SL team using the self-assessment process as an opportunity to reflect, share and compare points of view. 6) From the rubric results, teachers are encouraged to implement new learning activities, establishing realistic and contextualized improvement plans, and giving rise to varied experiences.

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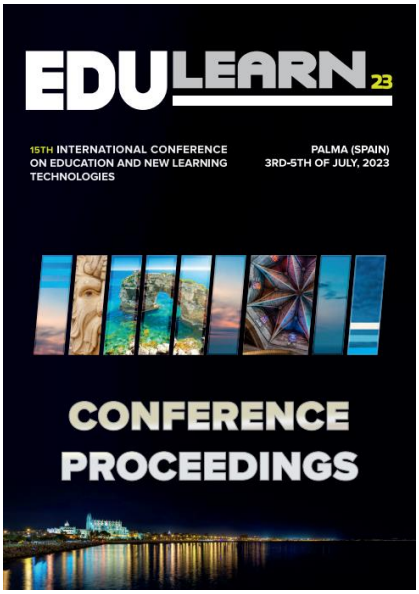
ANEXO IV: Comunicaciones a Congresos



ANEXO V: ENLACES DE LA DOCUMENTACIÓN GOOGLE DRIVE

Vídeo conferencia/webinar impartida por el Dr. Orduñez- Líder de la Estrategia Heart OPS/OMS

https://drive.google.com/file/d/1Vb3U08RMYkHfI3JRipb7PxLEUA4YN2wU/view?usp=drive_link

Material de difusión y divulgación diseñado por el profesorado

1.-Página web y redes sociales
stophipertension@ucm.es

@aps_stop

@stophipertension

2.-Carteles, Logo, Roll-ups y Merchandising.
https://drive.google.com/drive/folders/1j8exzBseV2Dn9mfpnj_yqSfYl-5cTzGp?usp=drive_link

3.-Vídeo acto de celebración y cierre 20 de abril de 2023

https://drive.google.com/file/d/1CTF7KKjoZhOeiJe4_bLXDEkW0KVGivWb/view?usp=drive_link

4.-Video premio IV edición Emprendimiento social UCM

https://drive.google.com/file/d/1ikJ6-Cp8B4AQl7zGsCtbcvJ3RQJHpM6C/view?usp=drive_link

Material divulgativo diseñado por el alumnado:

1.-Carteles tutoriales y promocionales

https://drive.google.com/drive/folders/1wEmfMY7rYEkY-r2lZb_2oQFhhJfz0Gu0?usp=drive_link

2.-Videos tutoriales y promocionales

https://drive.google.com/drive/folders/1bBr11SDLioBMzNOq8GObDCgaLa6vxA5W?usp=drive_link

3.-Infografías

https://drive.google.com/drive/folders/1jLzjKxqWslmsMiwEDO6hft51PrSW_f6q?usp=drive_link

4.-Hojas de registro AMPA

https://drive.google.com/drive/folders/1jpCd3GkPWCiz3Zm6KetPW7UwtStxZu9J?usp=drive_link

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