Biomimicry Design for Sustainability Skills in VET

KA220-VET-00620D4B

Quality Evaluation Report

WP3. Training Modules on Biomimicry Process Design

Elaborated by

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INSTITUTO PARA
EL FOMENTO DEL
DESARROLLO Y
LA FORMACIÓN

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the European Union

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Introduction

The project Let's Mimic aims to make vocational education and training (VET) systems more sustainable and relevant, equipping young people with the skills needed to contribute to and benefit from sustainable development. Under sustainability, the project supports the integration of eco-conscious practices into VET curricula across Europe, emphasising environmental management and promoting eco-education. It encourages collaboration among stakeholders to enhance VET delivery and fosters public appreciation for technical careers, promoting a culture of lifelong learning. In terms of relevance, Let's Mimic seeks to align VET with evolving labour market demands. This includes skills forecasting, competency-based training, and making vocational pathways more attractive to learners. The project also promotes the creation of industry-responsive programs at the secondary level and the use of digital learning tools to modernise training delivery. By combining sustainability and relevance, Let's Mimic helps build future-ready VET systems that empower both learners and communities.

The project has five Work Packages (WP):
- WP1. Project Management.
- WP2: Biomimicry Process Design for Sustainability Skills.
- WP3. Training Modules on Biomimicry Process Design.
- WP4. Biomimicry Platform Development.
- WP5. Dissemination and Exploitation.

This report compiles the findings of the Post Development WP3 Quality Evaluation Survey, which focused on the Let's Mimic project's third work package: *Training Modules on Biomimicry Process Design*. WP3 has three deliverables:

1) **D3.1 Self-Regulated Learning Kit (SRL):** The kit aims to promote Sustainability Skills through Biomimicry Process Design. It is a set of educational challenges and case studies for building sustainability skills on which VET learners will work collaboratively through the biomimicry design platform and/or by themselves to apply the biomimicry process design; a biomimicry learning guide including basic concepts of biomimicry, introduction of biomimicry spiral and summary of 70 solutions by nature.

2) **D3.2 Biomimicry handbook for VET teachers:** The Handbook for VET teachers is a guide on the practical application of the PBL method and background knowledge on Biomimicry Process Design for VET teachers

3) **D3.3 Biomimicry training modules:** The "Training Modules to promote Sustainability Skills through Biomimicry Process Design" foster the development of sustainability skills among VET students aged 14-18 by applying biomimicry process design in STEM subject through PBL methodology; a hands-on, project-based learning content that provides VET teachers with an engaging framework to introduce bio-inspired design and an interdisciplinary lens on science, engineering, and environmental literacy with a unique STEM experience and empowers them to envision solutions to social and environmental challenges.

Each deliverable has been evaluated separately.

Methodology

There have been two sources of evaluation:
- **Internal**: all 6 partners have participated in the evaluation, specifically regarding the OECD/DAC evaluation criteria.
- **External**: Each participating country engaged at least one expert to conduct the external evaluation of the project, ensuring that the assessment adhered to the internationally recognised OECD/DAC evaluation criteria. These external evaluators, drawn from all partner countries, contributed to a comprehensive and balanced review of the project's outcomes and methodologies.

The profiles of the evaluators are the following:
- *Internal evaluators:* Project Coordinators, Project Managers, Project Technicians, Researchers, VET Educators.
- *External evaluators:* VET teachers and trainers working with VET learners at secondary level, VET educators, company trainers and VET practitioners, community leaders, civic initiatives and NGOs active in the field of education and training.

The evaluators brought a diverse range of professional backgrounds and expertise, enriching the evaluation process. Their profiles included secondary-level VET teachers and trainers, VET educators, company-based trainers, and experienced practitioners in vocational education and training. In addition, representatives from community organisations, civic initiatives, and NGOs active in the field of education and training also participated. This multidisciplinary approach provided valuable insights and reinforced the relevance and quality of the evaluation across different educational and socio-cultural contexts.

Each survey is designed to ensure that the qualitative KPI defined in the Project Proposal for each specific Work Package (WP) is reached. The following are the **qualitative KPI** as defined in the proposal:

- The QUALITY and RELEVANCE of the results:
  - The content of the self-regulated learning - Challenges and case studies will be defined based on real-life problems and will call for the application of 21st-century skills, such as problem-solving, analytical thinking, creative thinking, ICT, and multidisciplinary approaches to STEM subjects. Solutions by nature are to be chosen relevant to the level of VET learners' age and knowledge
  - 7 learning units of learning content will cover 6 steps of the Biomimicry Design Process and a Introduction Unit which will cover the basic concepts of biomimicry and the background knowledge for VET learners

Please note that this report only covers the quantitative and qualitative KPI that refer to the deliverables of WP3. The KPI referring to meetings and collaboration between the partnership are covered in the respective quality evaluation report.

Internal and external evaluators were asked to evaluate Let's Mimic WP3 according to the following criteria:

- The development process of D3.1, D3.2 and D3.3.
- The possible conclusions that can be made and the consequences that can be drawn/ expected as a result of the deliverables.
- Quality: Whether partners are satisfied with the quality of WP3 deliverables (and if not, how could it be improved).
- To what extent the purpose envisaged of the WP3 has been achieved.
- How well the deliverables (content, methodology, etc) can be converted into results,
- Sustainability: How partners' organisations will use the WP3 deliverables beyond the project lifespan.
- Relevance: How suitable the WP3 deliverables are for the target users, and the extent to which partners would evaluate that the stated objectives of the project result correctly address the identified problems and needs of the target group.
- Impact: The impact of the WP3 deliverables in a general sense, and on partner organisations, and how this impact could be maintained during and after the project lifespan.
- If there are any additional benefits to the WP3 deliverables which target users or beneficiaries have or will experience.
- Whether partners have any additional comments or recommendations.

Evaluators were asked to rate various aspects of the deliverable on a scale from 1 to 5, with 1 representing the lowest score and 5 the highest.

OECD/DAC Evaluation Criteria

The OECD Development Assistance Committee (DAC) is the leading international forum for bilateral providers of development co-operation. Its main objective is to promote development cooperation and other policies in order to contribute to sustainable development. The OECD DAC Network on Development Evaluation (EvalNet) has defined six evaluation criteria: relevance, coherence, effectiveness, efficiency, impact, and sustainability. These criteria provide a normative framework for determining the merit or worth of an intervention (policy, strategy, programme, project, or activity). They serve as the basis upon which evaluative judgements are made.

- **Relevance**: This criterion refers to the extent to which the deliverable addresses the identified problems and needs of the target groups. In what way does the deliverable/ does the deliverable not reflect this?
- **Effectiveness**: This criterion refers to the extent to which the purpose envisaged for the deliverable has been achieved. In what way does the deliverable/ does the deliverable not reflect this?
- **Efficiency**: This criterion refers to how well the deliverable can be developed into the appropriate project results. Are any additional requirements needed?
- **Impact**: This criterion refers to the expectations for the impact. What can be done to further deliver an impact?

- **Sustainability**: This criterion refers to the evaluation of the likelihood of a continuation in the benefits produced by the deliverable beyond the project lifecycle
- **Added Value:** This criterion refers to an assessment of usability and applicability of the deliverable for the relevant organisations in the partnership.

For more information, please refer to:
https://www.oecd.org/dac/evaluation/daccriteriaforevaluatingdevelopmentassistance.htm#

Deliverables Quality Evaluation

D3.1 Self-regulated learning kit Evaluation

Internal Evaluation

D3.1 Development Process

The Let´s Mimic partnership has reported that they found the development process (work programme, guidelines, and template) for D3.1. development to be clear, smooth and issue-free.

All partners contributed to the development of the deliverable by undertaking various tasks, including creating learning content such as challenges, solutions, and case studies; developing templates and guidance materials; and making contributions to the design of the Self-Regulated Learning Kit and training modules. All partners were also involved in drafting, reviewing, and translating content to ensure its coherence, accessibility, and relevance for VET contexts.

Please rate your organisations' level of compliance with the implementation of the deliverable work programme.

6 responses
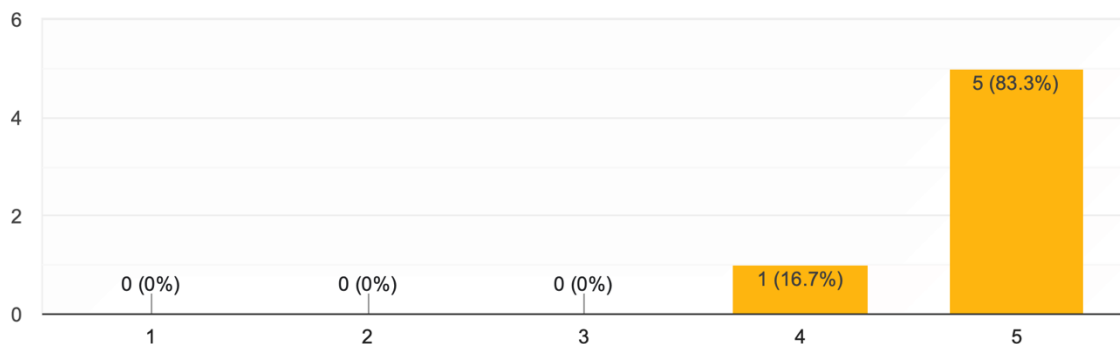
D3.1 Overall Quality

The Let´s Mimic Partnership have reported that they are delighted with the quality of D3.1. It is highly impactful and of high quality, with a high consistency in the content included in the deliverable regarding the project topic, and the deliverable is highly user-friendly.

Please rate your overall satisfaction with quality of the deliverable
6 responses

| Rating	Count
1	0 (0%)
2	0 (0%)
3	0 (0%)
4	1 (16.7%)
5	5 (83.3%)
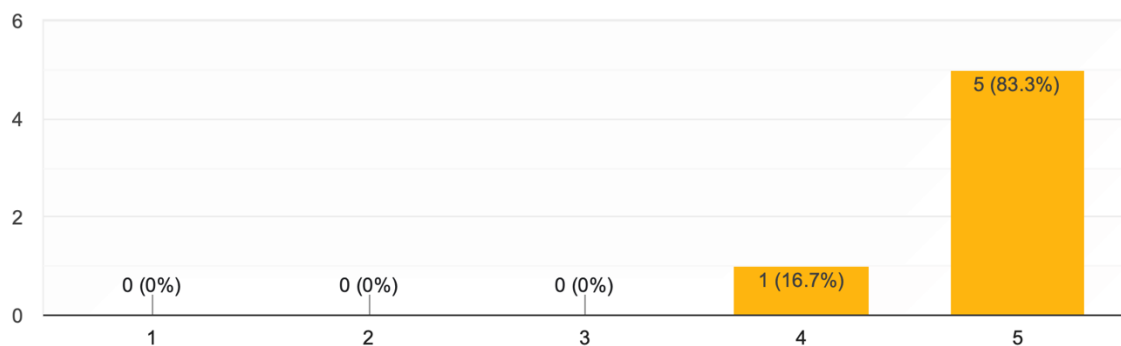
Target Audience and Relevance

The Let's Mimic Partnership agreed that D3.1 is very suitable for the target groups. The deliverable correctly addresses the identified problems and needs of the target groups. Additionally, partners completely agreed that the stated objectives of the project result correctly address the identified problems and needs of the target audience.

How suitable is the deliverable for its target audience (teachers and curriculum developers)?
6 responses
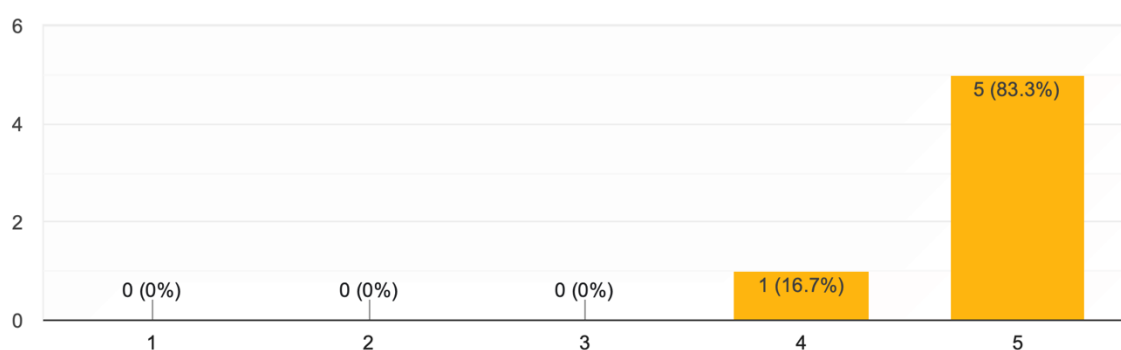
| Rating	Count
1	0 (0%)
2	0 (0%)
3	0 (0%)
4	1 (16.7%)
5	5 (83.3%)

Effectiveness

Partners were asked about the effectiveness of the deliverable, i.e. to what extent has the intended purpose of the deliverable been achieved. Partners expressed full satisfaction with the project result, affirming that it effectively fulfils its intended purpose: "*to build*

sustainability skills on which VET learners will work collaboratively through the biomimicry design platform and/or by themselves to apply the biomimicry process design."

To what extent has the intended purpose of the deliverable been achieved?   Purpose: to build sustainability skills on which VET learners will wo...hemselves to apply the biomimicry process design.

6 responses
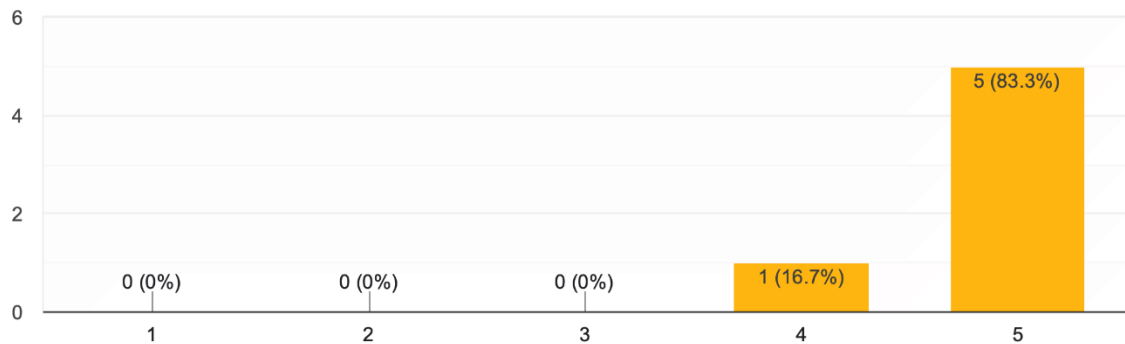
[Bar chart showing values on x-axis 1 through 5:
- 1: 0 (0%)
- 2: 0 (0%)
- 3: 0 (0%)
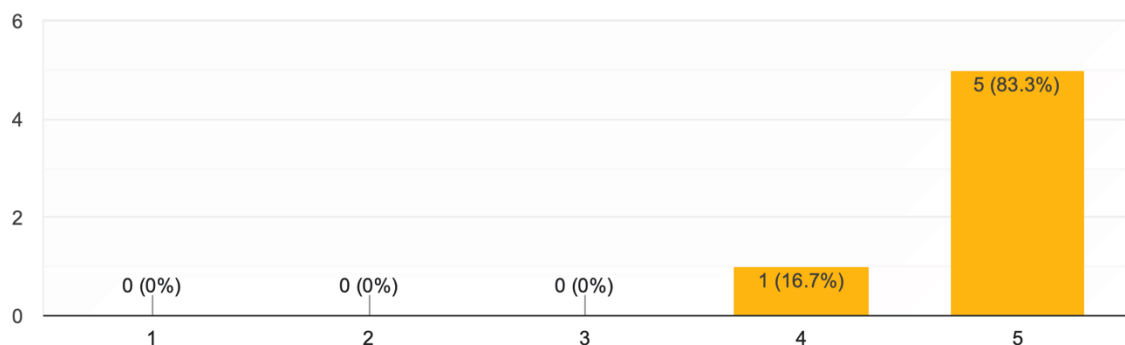- 4: 1 (16.7%)
- 5: 5 (83.3%)]

Efficiency

Partners expressed complete satisfaction with the deliverable, noting that its content, methodologies, and structure are well-developed and practical. They highlighted its strong potential to be effectively transformed into concrete results, both in terms of educational implementation and real-world impact.

How well do you think the deliverable (contents, methodology) can be converted into results?

6 responses

[Bar chart showing values on x-axis 1 through 5:
- 1: 0 (0%)
- 2: 0 (0%)
- 3: 0 (0%)
- 4: 1 (16.7%)
- 5: 5 (83.3%)]

Impact

For both target users and target beneficiaries, the deliverable is considered to it will have a high impact:

Impact for Target Users (VET Teachers and Trainers)

- Provides an innovative, ready-to-use educational resource that supports the integration of biomimicry into teaching practices.

- Equips teachers with structured tools and strategies to foster self-regulated learning, autonomy, and student motivation.
- Supports inquiry-based and sustainability-focused teaching through real-world challenges and nature-inspired solutions.
- Enhances professional development by promoting modern pedagogical approaches aligned with green and 21st-century skills.
- Helps teachers deliver content in a more engaging and relevant way, improving lesson quality and student engagement.
- Enables the practical application of biomimicry concepts in the classroom with support from the digital platform.

Impact for Target Beneficiaries (VET Learners)

- Promotes personal responsibility, critical thinking, goal-setting, and reflective learning—key competencies for lifelong learning.
- Offers a dynamic and engaging experience through the exploration of 70 real-life biomimicry challenges, solutions, and case studies.
- Encourages creativity, adaptability, and environmental awareness by showing how nature can inspire sustainable solutions.
- Develops green skills and systems thinking in a practical context, preparing learners for future-ready, sustainable careers.
- Boosts motivation and more profound understanding through autonomy in selecting learning content based on their interests.
- Enhances ecological literacy and fosters innovation relevant to the evolving demands of the green labour market.

Sustainability

All partners agreed that the deliverables´ impact and benefits will be sustained beyond the project lifecycle. On this, partners commented as follows:

- The website and platform will remain active and accessible after the project's completion: This ensures that all project deliverables, including the SRL Kit, continue to be available for use by educators, learners, and institutions beyond the project timeline.
- The SRL Kit will be integrated into regular teaching practices and teacher training sessions: Embedding the SRL Kit into standard educational activities helps maintain its relevance and impact. By incorporating it into ongoing training and curriculum planning, teachers will continuously apply the tools in their work with learners.
- Teachers will be equipped with the necessary skills to effectively use the SRL Kit: Throughout the project, workshops, webinars, and hands-on training sessions will prepare educators to adopt and implement the SRL Kit confidently. These capacity-building efforts are essential for sustainable application.
- Educators and students will actively participate in piloting the SRL Kit: Direct involvement in testing the kit enables real-time feedback and iterative improvement

of the content. Piloting in authentic VET settings ensures that the materials are practical, adaptable, and effective.

- The SRL Kit and platform resources will be translated into national languages and shared on open-access platforms: Providing the materials in multiple languages and making them freely accessible online enhances reach and usability across different educational systems and contexts.
- Collaboration with local educational institutions will be reinforced through sustained partnerships built on joint projects, teacher exchanges, and collaborative training initiatives. These efforts help to anchor the project's impact in the broader educational ecosystem.
- Advocacy efforts will target the inclusion of biomimicry and sustainability skills in national or regional VET curricula. Institutionalising these themes ensures long-term alignment with green transition goals and secures the relevance of the deliverables for future vocational education reforms.
- Public bodies will support dissemination at a regional level: Authorities will engage all VET schools in the province by sharing information about the project's results through official channels and multiplier events, encouraging widespread use of the platform and resources.

<u>Added Value</u>

Partners agreed that the deliverable is extremely valuable and relevant to their organisations, anticipating a significant positive impact on both their institutions and personnel. They highlighted the following advantages that the deliverable is expected to provide to their organisations:

- Virtual Campus: To learn more about biomimetic design.
- INFODEF: The SRL Kit will significantly enhance INFODEF's training and research capacities by enriching its educational resources with innovative, interactive, and sustainability-focused content. By integrating biomimetic design and self-regulated learning methodologies, INFODEF will strengthen its ability to implement learner-centred, technology-enhanced approaches aligned with green skills development and labour market demands. This deliverable not only supports learner autonomy but also reinforces INFODEF's role as a leader in promoting cutting-edge educational innovation within the VET sector. The adoption and dissemination of the SRL Kit will open up opportunities for long-term collaboration with schools and VET institutions, fostering sustainable education practices and expanding the organisation's impact at both national and European levels.
- ECC: It enriches our training resources, supports learner autonomy, and strengthens our capacity to implement innovative, learner-centred approaches in VET education.
- UTH: Rich, innovative, and interactive educational material for technology-enhanced learning and green skills development
- ATS: The SRL Kit will enrich the organisation's training centre programs with innovative, sustainability-focused content. By incorporating biomimicry and self-regulated learning, the training centre will adopt cutting-edge pedagogical

approaches that will align with current educational trends and labour market needs. Through ongoing use of the SRL Kit, the organisation training centre will be able to establish long-term partnerships with schools and VET institutions, fostering innovation and sustainability in education across the region.
- YAKACIK: Improved awareness; motivation and interest.

Additional information/comments

Partners were invited to provide any suggestion for the improvement or complementation of the deliverable. One of the partners mentioned the following:
- *This deliverable is exceptionally complex and offers fascinating examples, which will be a pity not to share with a broader audience. Thus, not only during piloting but also during exploitation events, as a recommendation, partners should look into ideas on how to present the results more interactively, like interactive previews, short infos such as " did you know?, short videos, live or recorded sessions where teachers and students can explore the content, ask questions, and share ideas.*

External Evaluation for D3.1

Each country contacted at least one expert on the matter, who conducted the external evaluation of the project using a semi-structured questionnaire. External evaluators from all partner countries participated in the evaluation of D3.1

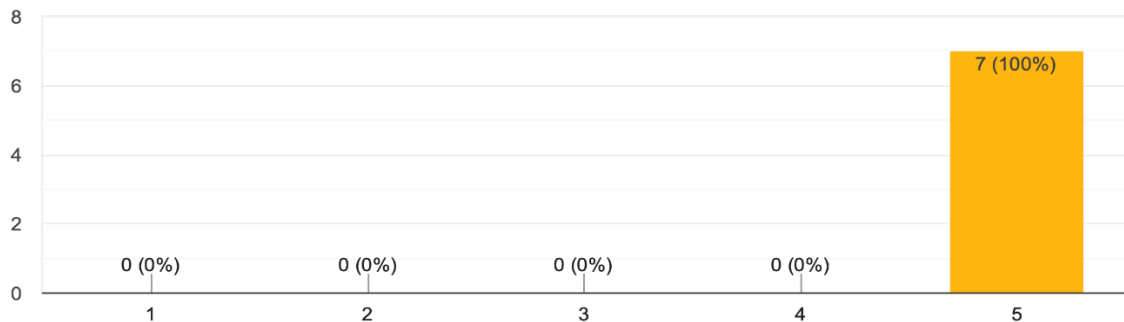**Overall quality evaluation of D3.1 Self-regulated learning kit**

Please rate the overall quality of the D3.1 Self-regulated learning kit
7 responses
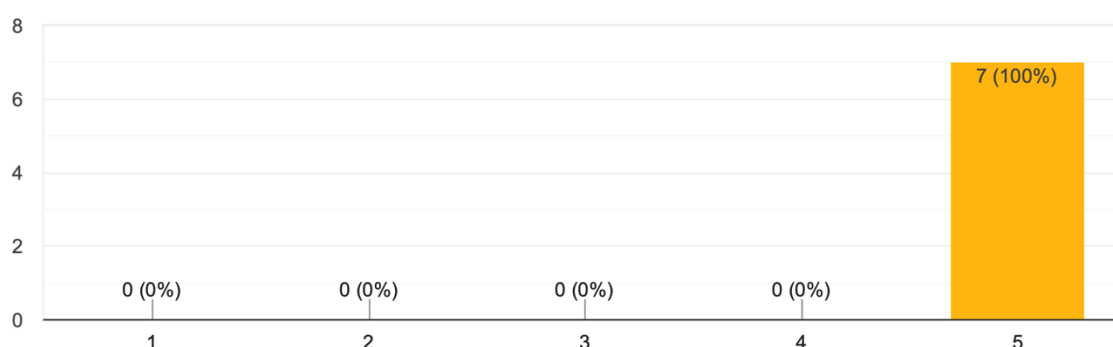
How much do you agree with this statement: "Challenges and case studies are defined from the real life problems and call for the application of 21 cen...d multi-disciplinary approaches to STEM subjects."
7 responses

How much do you agree with this statement: "The chosen solutions by nature are relevant to the level of VET learners' age and knowledge."
7 responses
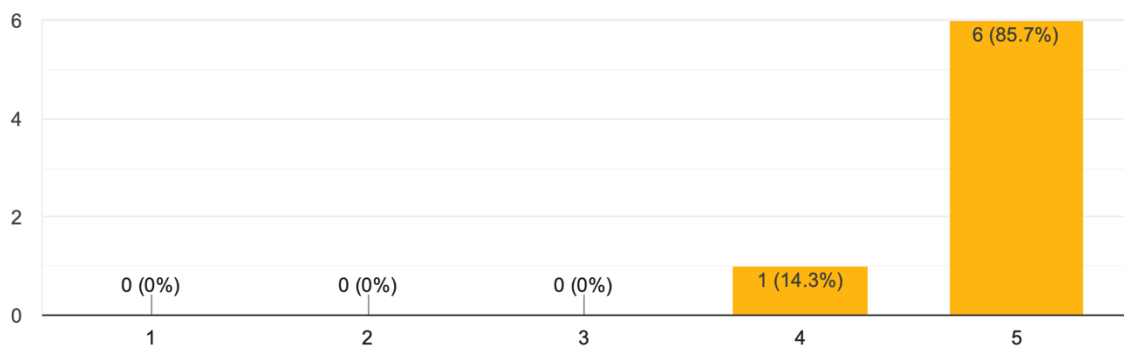
External evaluators shared their insights regarding the appropriateness, relevance, ease of use, etc) of D3.1, which are summarised as follows:

- **High Quality and Relevance:** The SRL Kit is a well-structured, user-friendly resource that effectively supports self-regulated learning in VET. It is relevant to both educators and learners, aligning with modern pedagogical goals.
- **Pedagogical Value:** It promotes autonomy, motivation, and 21st-century skills such as critical thinking, collaboration, and digital literacy. The use of biomimicry-based methodologies ensures engaging, real-world learning.
- **Practical and Scalable Design:** The inclusion of real-life challenges, nature-inspired case studies, and interactive tools makes the kit adaptable and suitable for varied teaching environments. It contributes to sustainability education and supports the green transition.

Impact of D3.1 on target groups

External evaluators have reported that they are completely satisfied with the quality of D3.1 and that it will have high impact on both target users and beneficiaries:

Impact on Target Users (VET Educators, Facilitators, Curriculum Developers)

- The D3.1 Self-Regulated Learning (SRL) Kit equips teachers with a structured, digital toolkit that supports the integration of biomimicry and sustainability into everyday teaching.
- It enables a pedagogical shift from traditional instruction to learner-centred facilitation, guiding students in goal-setting, progress monitoring, and reflection.
- The kit encourages the adoption of innovative teaching practices such as inquiry-based learning, gamification, and project-based activities.
- It supports curriculum innovation aligned with green skills and sustainability objectives, enhancing teachers' ability to foster autonomy, critical thinking, and reflective practices.
- Easily integrated into daily classes, it provides practical content ready for immediate classroom use, boosting teacher confidence in applying biomimicry.

Impact on Target Beneficiaries (VET Learners)

- Learners benefit from hands-on, real-world challenges that build ownership over their learning journey through the biomimicry design process.
- The SRL Kit fosters essential 21st-century competencies such as creativity, collaboration, ecological literacy, and digital skills.
- It enhances motivation and engagement by promoting active learning and self-regulation strategies, including planning, monitoring, and self-assessment.
- The approach cultivates adaptability, personal responsibility, and sustainability awareness—key attributes for future employment in green and evolving job markets.
- Through nature-based problem-solving, learners gain both technical knowledge and soft skills needed for lifelong learning and environmentally conscious careers.

D3.2 Biomimicry handbook for VET teachers Evaluation

Internal Evaluation

D3.2 Development Process

The Let´s Mimic partnership has reported that they found the development process (work programme, guidelines and template, overall implementation) for the D3.2. development to be clear, smooth and issue-free.

All partners contributed to the development of the deliverable by providing content, reviewing draft versions, and offering constructive feedback throughout the process. While ECC took the lead in coordinating the activity, other partners actively supported the creation of the handbook aimed at helping teachers apply biomimicry in education. Overall, collaboration was consistent across organisations, with no major differences in the type of input provided.

Please rate your organisations' level of compliance with the implementation of the deliverable work programme.

6 responses
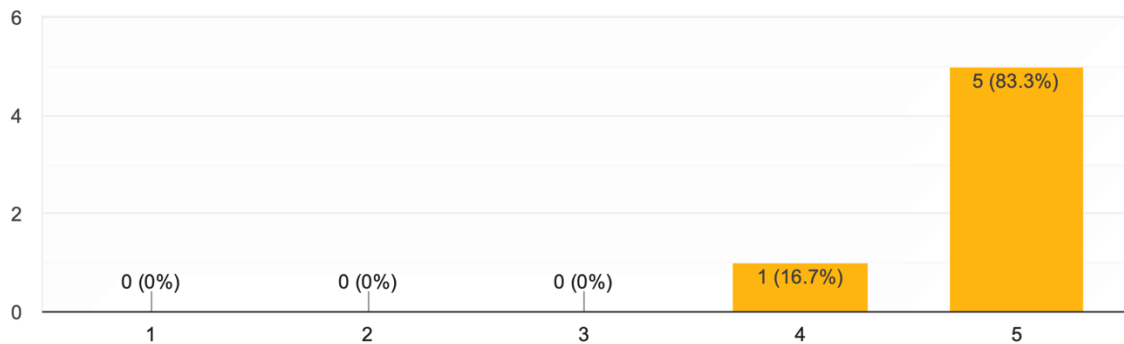
D3.2 Overall Quality

The Let's Mimic partnership has reported that they are delighted with the quality of D3.2. It is very impactful and of high quality, with a high consistency of content included in the deliverable regarding the project topic, and the deliverable is highly user-friendly.

Please rate your overall satisfaction with quality of the deliverable
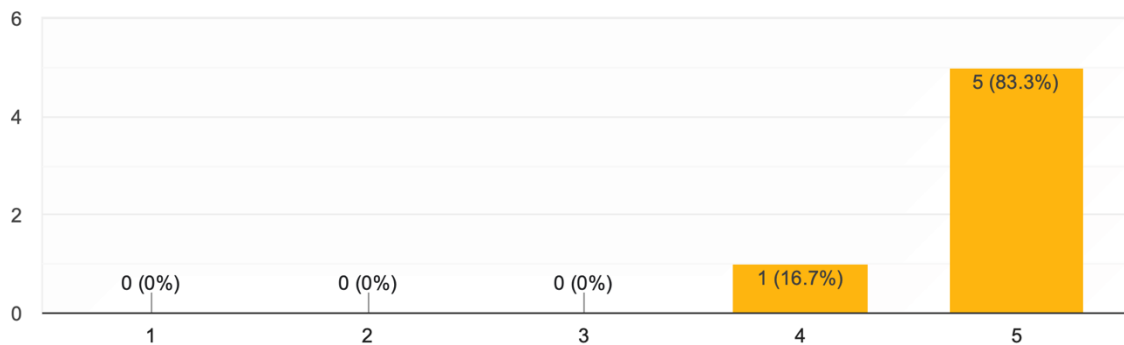
6 responses
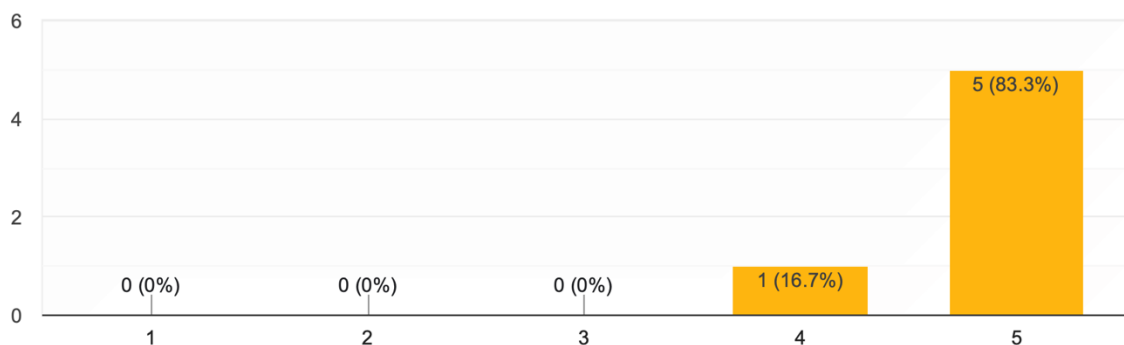
Target Audience and Relevance

The Let's Mimic Partnership agreed that D3.2 is very suitable for the target groups. The deliverable correctly addresses the identified problems and needs of the target groups. Additionally, partners completely agreed that the stated objectives of the project correctly address the identified problems and needs of the target audience.

To what extent would you agree that the objectives of the deliverable correctly address the identified problems and needs of the target groups?

6 responses

Effectiveness

Partners were asked about the effectiveness of the deliverable, i.e. to what extent has the intended purpose of the deliverable been achieved. Partners expressed full satisfaction with the project result, affirming that it effectively fulfils its intended purpose: "*to support VET educators in designing and delivering biomimicry learning activities in the classroom. The document presents a methodological learning design that integrates biomimicry with problem-based learning and other active learning methodologies, such as experiential and inquiry-based. It presents steps for educators to design, deliver, and evaluate the positive impact of biomimicry activities on students.*"

To what extent has the intended purpose of the deliverable been achieved?   Purpose: to support VET educators in designing and delivering biomimicr...tive impact of biomimicry activities on students.

6 responses
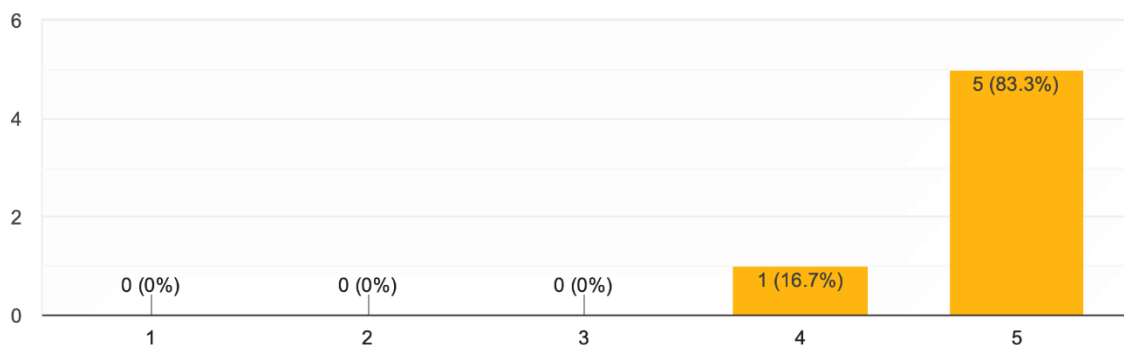
Efficiency

Partners expressed complete satisfaction with the deliverable, noting that its content, methodologies, and structure are well-developed and practical. They highlighted its strong potential to be effectively transformed into concrete results, both in terms of educational implementation and real-world impact.

How well do you think the deliverable (contents, methodology) can be converted into results?
6 responses
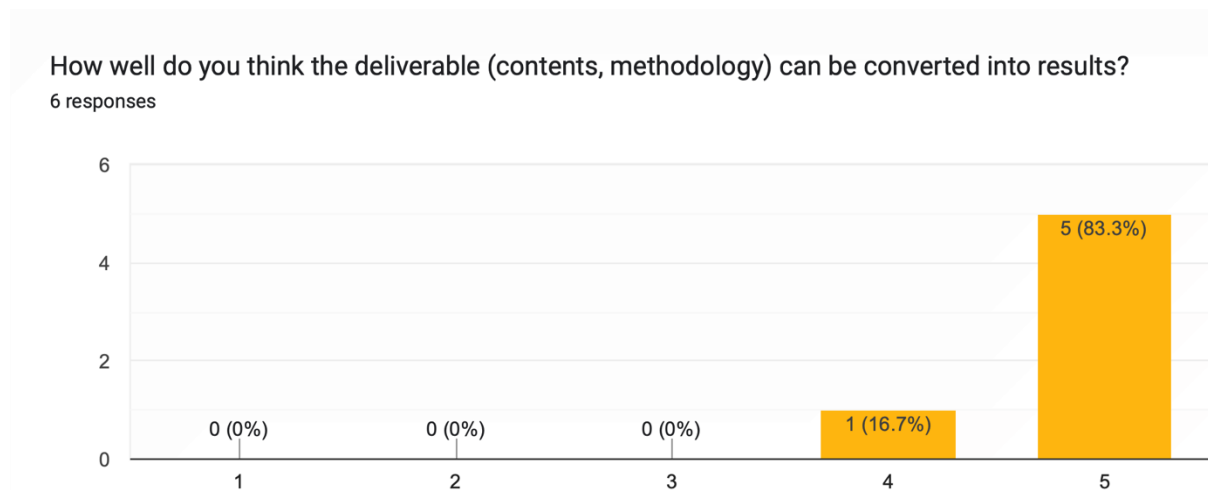
Impact

For both target users and target beneficiaries, the deliverable is considered to it will have high impact:

Impact for Target Users (Teachers/Trainers)

- Provides a clear, practical, and accessible guide to introduce biomimicry and sustainability in vocational education.
- Supports educators who may be unfamiliar with the topic, boosting their confidence and ability to deliver innovative content.
- Encourages innovation in lesson planning through nature-inspired, real-world educational strategies.
- Enhances capacity to promote green skills and embed sustainability into teaching practices.
- Offers practical tools and pedagogical strategies that facilitate the integration of biomimicry into curricula.
- Increases educators' awareness and willingness to incorporate sustainability topics into the classroom.

Impact for Target Beneficiaries (Learners)

- Offers students engaging and meaningful learning experiences through real-world challenges.
- Fosters key 21st-century competencies such as critical thinking, creativity, and problem-solving.
- Promotes environmental awareness and sustainability-oriented mindsets.
- Encourages learners to take responsibility, think independently, and reflect on their learning journey.

- Helps develop both technical and soft skills aligned with green jobs and future labour market needs.
- Inspires learners to explore how nature can offer solutions to sustainability challenges, encouraging lifelong learning.

Sustainability

All partners agreed that the deliverables´ impact and benefits will be sustained beyond the project lifecycle. On this, partners commented as follows:

- Ensure transferability: Materials should be easily adaptable to various educational contexts and schools.
- Integrate into teacher training: Include the handbook in training programmes to familiarise teachers with biomimicry approaches.
- Dissemination: Share the handbook via institutional networks and educational platforms.
- Continuous improvement: Regularly update materials based on feedback from teachers and students.
- Ongoing use: The handbook and project results will continue to be used in regular activities at VET schools.
- Capacity building: Organise training sessions and events to equip teachers with the skills to implement biomimicry-based teaching.
- Online access: Provide the handbook and resources online for free to broaden reach and ensure accessibility for new teachers.
- Curriculum integration: Advocate for including biomimicry in official VET curricula to amplify impact.
- Feedback systems: Establish mechanisms to gather user input and refine materials accordingly.

Added Value

Partners agreed that the deliverable is extremely valuable and relevant to their organisations, anticipating a significant positive impact on both their institutions and personnel. They highlighted the following advantages that the deliverable is expected to provide to their organisations:

- Virtual Campus: New resource that we can disseminate with the VET teachers that have been collaborating with us.
- INFODEF: The deliverable will be a valuable asset for INFODEF, enhancing its training design offer with innovative, sustainability-focused content based on biomimicry. It will strengthen the organisation's role as a reference in green skills development and forward-thinking education. The handbook will support VET teachers with practical tools to deliver more engaging and future-oriented learning activities, while also improving their competencies in promoting sustainability. Additionally, it offers new

opportunities to collaborate with local educational institutions and share expertise through INFODEF's established VET networks.

- ECC: It strengthens our educational offer, showcases our expertise in sustainability and biomimicry, and provides a valuable tool to support VET teachers in delivering innovative, future-oriented training.
- UTH: Enriched educator capacity to promote green skills, enriched learning activities through the proposed guidelines
- YAKACIK: improved skills and competencies in teachers
- ATS: The handbook will serve as a strategic asset for the organisation's training centre, enriching its programs with innovative, sustainability-focused content rooted in biomimicry. By integrating these forward-thinking approaches, the organisation will not only enhance the quality and relevance of its training. Still, it will also strengthen its identity as a leader in green and future-oriented education. Furthermore, the handbook will lay the groundwork for meaningful collaboration with local educational institutions.

Additional information/comments

Partners were invited to provide any suggestion for the improvement or complementation of the deliverable. No further comments were made.

External Evaluation for D3.2

Each country contacted at least one expert on the matter, who carried out the external evaluation of the project according to a semi-structured questionnaire. External evaluators from all partner countries participated in the evaluation of D3.2.

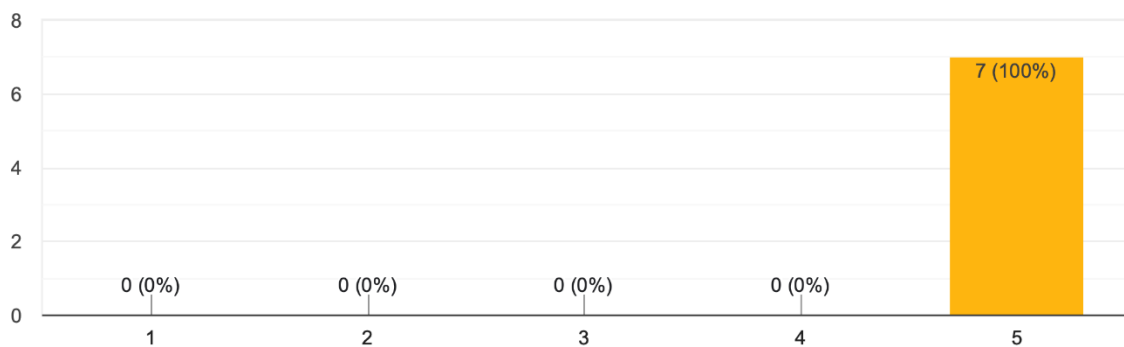**Overall quality evaluation of D3.2 Biomimicry handbook for VET teachers**

## Please rate the overall quality of the D3.2 Biomimicry handbook for VET teachers
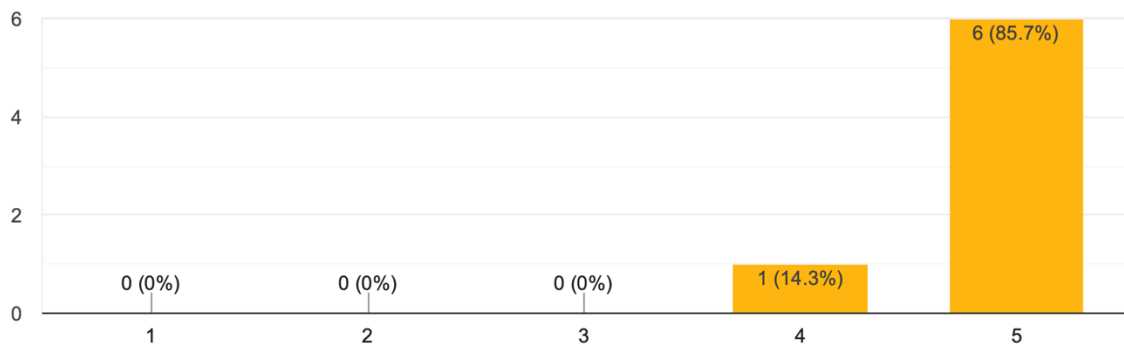
7 responses

How much do you agree with this statement: "The Handbook is a guidance on the effective application of the PBL method and background kno... on Biomimicry Process Design for VET teachers"
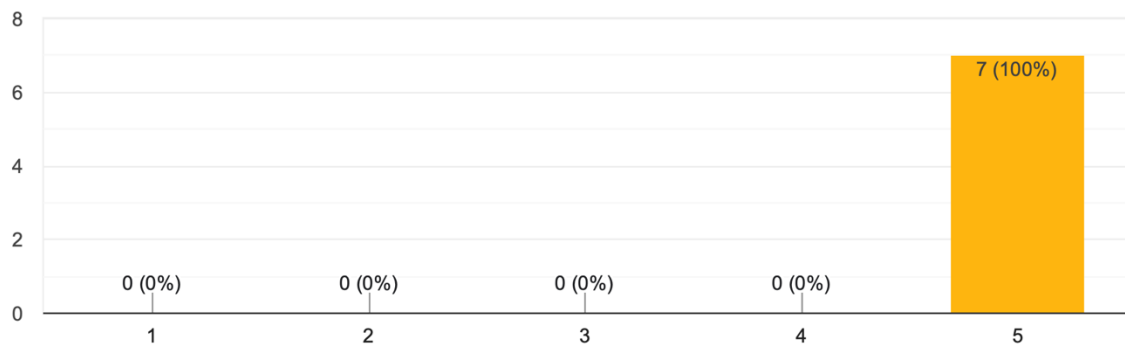
7 responses

Please rate the overall quality of the contents included in the D3.2 Biomimicry handbook for VET teachers in relation to the project topic?
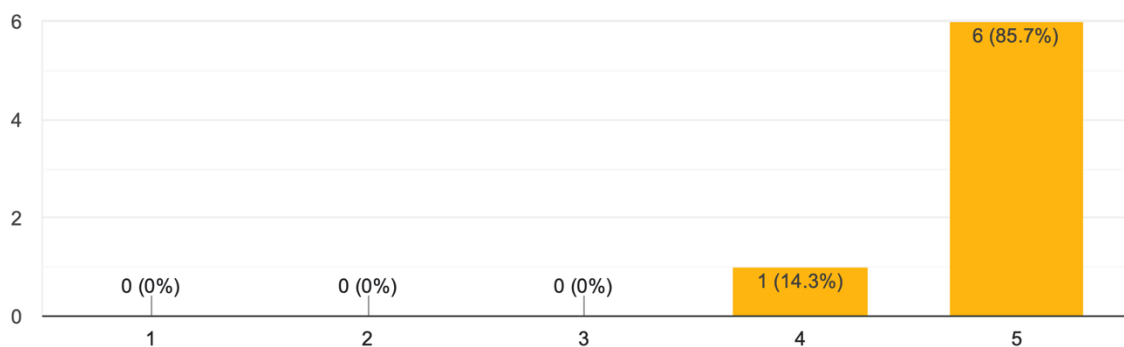
7 responses

Rate the usability and user-friendliness of the D3.2 Biomimicry handbook for VET teachers

7 responses

External evaluators shared their insights, which have been synthesised as follows:

General Overview

- High relevance and quality: The D3.2 Biomimicry Handbook is considered a high-quality, timely, and appropriate resource for VET education.
- Target audience: Specifically designed for VET teachers and educators, including those unfamiliar with biomimicry.
- Focus areas: Integrates sustainability, innovation, and biomimicry into teaching practices.

Pedagogical Value

- Active learning approach: Combines methodologies such as problem-based and inquiry-based learning (PBL).
- Structured learning path: Provides step-by-step guidance for teaching the six stages of biomimicry: Define, Biologize, Discover, Abstract, Emulate, and Evaluate.
- Practical usability: Includes pedagogical tips, real-world examples, and is applicable across different educational settings.

Impact and Accessibility

- Empowers teachers: Builds teachers' confidence and competence in delivering interdisciplinary and sustainability-focused lessons.
- Supports modern educational goals: Aligns with the promotion of green skills, ecological literacy, creativity, and critical thinking.
- Complementarity: Acts as a strong complement to other project resources, like the Self-Regulated Learning Kit and training modules.

Areas for Improvement

- Minor revisions needed: Some sections are still highlighted in yellow and should be finalised for improved presentation.

Impact of D3.2 on target groups

External evaluators have reported that they are completely satisfied with the quality of D3.2 and that it will have a high impact on both target users and beneficiaries:

Impact on Target Users (VET Teachers)

- Provides a clear, structured, and practical guide to integrating biomimicry into teaching.
- Enhances confidence and competence in delivering interdisciplinary, nature-based learning experiences.
- Supports professional development by aligning teaching practices with priorities such as:
  - Environmental responsibility.
  - Active learning.
  - Development of 21st-century skills.
- Offers step-by-step guidance for applying project-based learning (PBL) methodologies.
- Encourages a shift from traditional models to systems-oriented, innovative teaching approaches.
- Equips teachers with adaptable lesson plans, real-world examples, and tools for classroom application.
- Strengthens their ability to foster learner autonomy, creativity, and critical thinking.
- Helps educators update sustainability learning practices using biomimicry as a core theme.

Impact on Target Beneficiaries (VET Learners)

- Promotes engaging, relevant, and future-oriented learning experiences.
- Encourages the development of key skills through biomimicry-based activities, such as:
  - Critical thinking.
  - Real-world problem solving.
  - Systems thinking.
- Collaboration and creativity.
- Fosters greater understanding of STEM and environmental topics.
- Prepares learners for green careers and sustainable development by building both technical and soft skills.
- Supports autonomy and motivation through hands-on and innovative challenges.
- Enhances ecological literacy and a mindset aligned with circular economy principles.

D3.3 Biomimicry training modules Evaluation

Internal Evaluation

D3.2 Development Process

The Let's Mimic partnership has reported that they found the development process (work programme, guidelines, and template) for the D3.3. development to be clear, smooth and issue-free.

All partners contributed to the development of the training modules in various capacities, including designing the overall structure through the creation of a reporting template, developing individual modules, and contributing to the content of all seven training modules. Their involvement also included providing feedback, translating content, and ensuring the pedagogical coherence and applicability of the modules within VET contexts.

Please rate your organisations' level of compliance with the implementation of the deliverable work programme.
6 responses
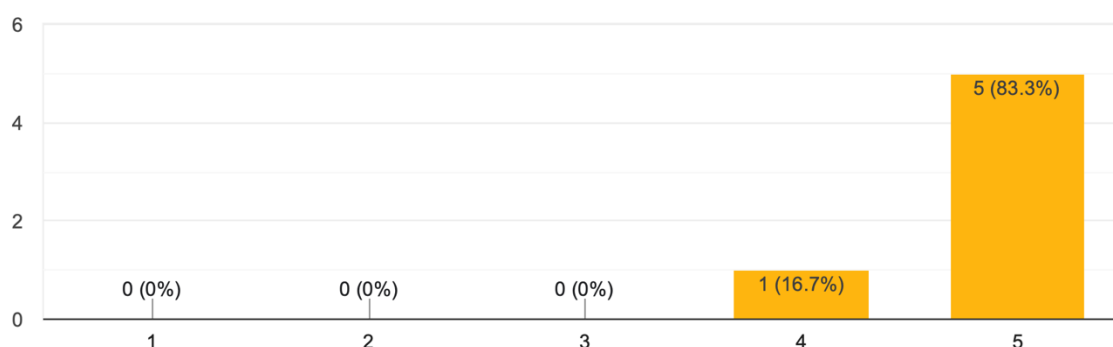
D3.2 Overall Quality

The Let's Mimic Partnership have reported that they are delighted with the quality of D3.3. It is very impactful and of high quality, there is high consistency of the contents included in the deliverable concerning the project topic, and the deliverable is highly user-friendly.

Please rate your overall satisfaction with quality of the deliverable

6 responses
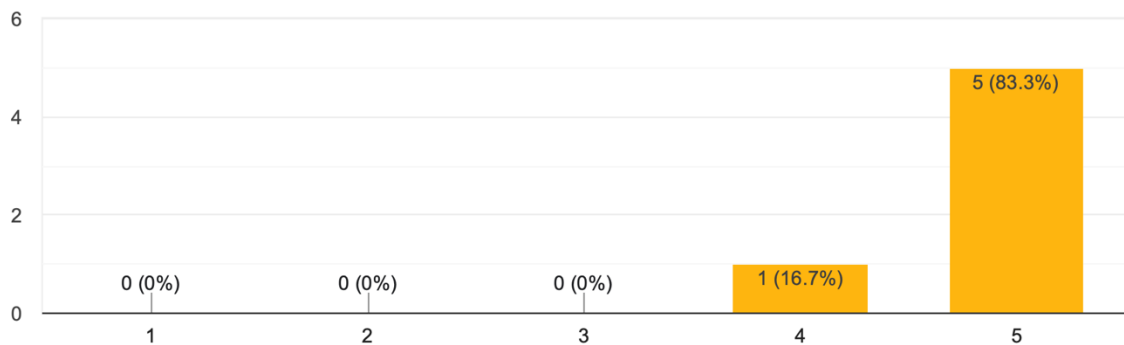
Target Audience and Relevance

The Let's Mimic Partnership agreed that D3.3 is very suitable for the target groups. The deliverable correctly addresses the identified problems and needs of the target groups. Additionally, partners completely agreed that the stated objectives of the project correctly address the identified issues and needs of the target audience.

To what extent would you agree that the objectives of the deliverable correctly address the identified problems and needs of the target groups?

6 responses
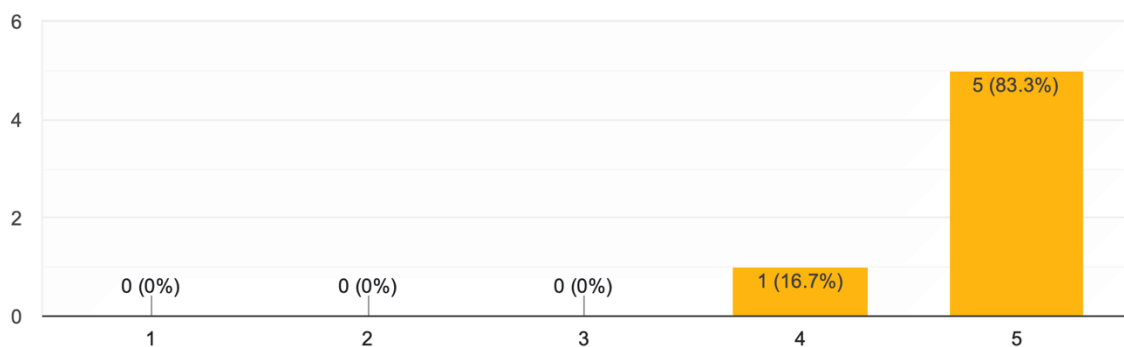
Effectiveness

Partners were asked about the effectiveness of the deliverable, i.e. to what extent the intended purpose of the deliverable has been achieved. Partners expressed satisfaction with the project result, affirming that it effectively fulfils its intended purpose: "*to foster the development of sustainability skills among VET students aged 14-18 by applying biomimicry process design in STEM subject through PBL methodology; a hands-on, project-based learning content that provides VET teachers with an engaging framework to introduce bio-inspired design and an interdisciplinary lens on science, engineering, and environmental literacy with*

a unique STEM experience and empowers them to envision solutions to social and environmental challenges."

To what extent has the intended purpose of the deliverable been achieved?   Purpose: to foster the development of sustainability skills among VET stu...olutions to social and environmental challenges.
6 responses
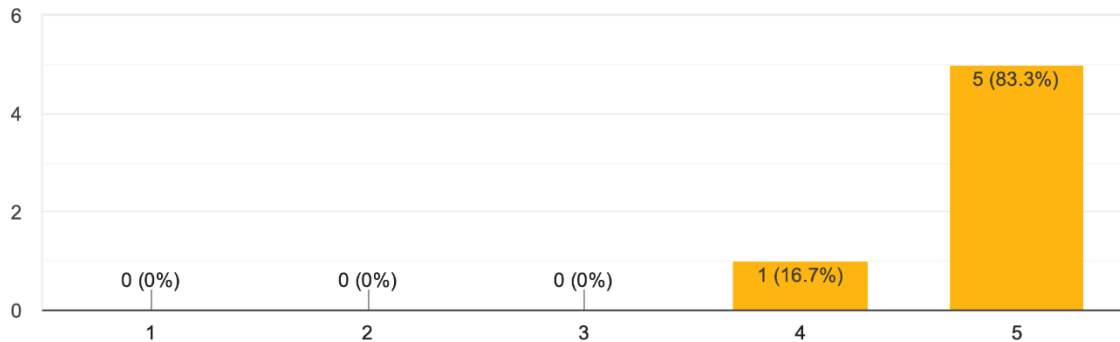
Efficiency

Partners expressed complete satisfaction with the deliverable, noting that its content, methodologies, and structure are well-developed and practical. They highlighted its strong potential to be effectively transformed into concrete results, both in terms of educational implementation and real-world impact.

How well do you think the deliverable (contents, methodology) can be converted into results?
6 responses
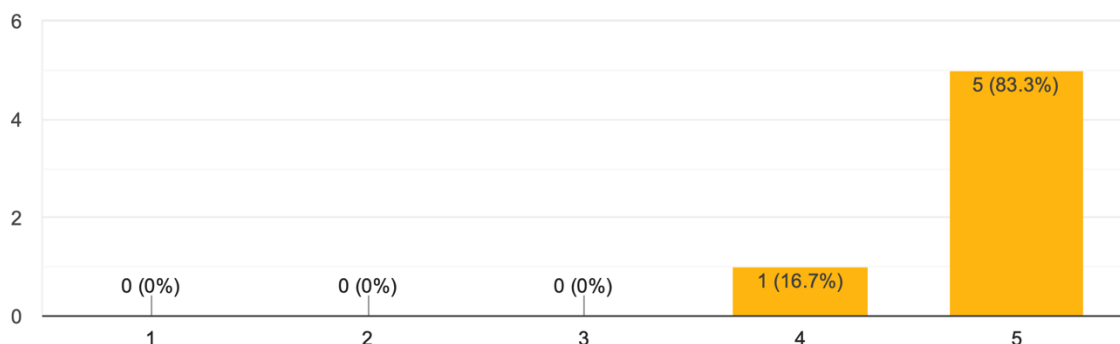
Impact

For both, target users and target beneficiaries, the deliverable is considered that it will have high impact:

Impact on Target Users (VET educators)

- The training modules offer a **structured, ready-to-use resource** that facilitates the integration of biomimicry and sustainability into VET curricula.
- They support **curriculum innovation** by introducing a project-based learning (PBL) approach aligned with active methodologies.
- Educators benefit from an **engaging teaching tool** that simplifies the delivery of complex concepts through clear, practical examples and hands-on activities.
- The modules contribute to **professional development**, helping educators enhance their pedagogical strategies and diversify their teaching methods.
- Teachers gain **better knowledge and skills in biomimicry**, improving their competence to apply nature-inspired and learner-centred teaching approaches.

Impact on Target Beneficiaries (VET learners)

- Learners are exposed to **interactive and engaging learning experiences** that deepen their understanding of biomimicry and sustainability.
- The modules promote the development of **critical thinking, creativity, and problem-solving skills** through real-world, nature-inspired challenges.
- Students benefit from **practical, hands-on activities** that increase motivation and foster exploration of environmental and societal issues.
- The approach supports **21st-century skill development**, including collaboration and innovation, essential for careers in the green economy.
- Learners improve their **awareness and competence** in applying biomimicry principles, preparing them for sustainable, future-oriented professions.

Sustainability

All partners agreed that the deliverables´ impact and benefits will be sustained beyond the project lifecycle. On this, partners commented as follows:

- Free and open access:
  o Training modules will remain freely available on the project platform for both internal and external users.
  o The platform will be maintained to ensure easy access and content updates.
- During the project:
  o Collaborate with VET institutions to pilot the modules and integrate them into existing curricula.
  o Empower students and teachers to act as biomimicry ambassadors, promoting sustainability in their schools and communities.
  o Offer training sessions and webinars to support teachers in effectively using the modules.
- After the project:
  o Advocate for the formal adoption of the modules at regional or national education levels.

- o Promote the modules through partnerships with environmental organisations, educational networks, and innovation hubs.
- o Share the modules on open platforms to ensure widespread dissemination and long-term impact.
- Institutional Commitment:
  - o Partners, including VET schools, will actively use the results and inform other schools about the available resources on the platform.

Added Value

Partners agreed that the deliverable is extremely valuable and relevant to their organisations, anticipating a significant positive impact on both their institutions and personnel. They highlighted the following advantages that the deliverable is expected to provide to their organisations:

- o UTH: Enriched student learning experiences for green skills development through biomimicry, enriched educator capacity to foster green skills development
- o ATS: The Let's Mimic training modules will significantly enrich our organisation training center's educational offerings by introducing an innovative, nature-inspired approach to sustainability education. The deliverables will also open new opportunities for exploitation through partnerships with local schools, enabling joint workshops, teacher training sessions, and student-led projects.
- o INFODEF: The Let's Mimic training modules will enhance INFODEF's educational offer by introducing an innovative, nature-inspired approach to sustainability and green skills development. They will strengthen INFODEF's role in supporting VET educators through practical, ready-to-use materials and promote student engagement through dynamic, real-world learning experiences. Additionally, the modules open new possibilities for collaboration with local schools, such as joint workshops and training sessions, while expanding INFODEF's expertise in biomimicry and reinforcing its commitment to forward-thinking education.
- o ECC: It expands our training offer with innovative, sustainability-focused content, enhances our expertise in biomimicry education, and strengthens our role in supporting VET educators with engaging, ready-to-use materials.
- o Virtual Campus: Contact with a new theme.
- o YAKACIK: Improved skills and competence on applying the principles of biomimicry.

Additional information / comments

Partners were invited to provide any suggestion for the improvement or complementation of the deliverable. One of the partners made the following comment:
- *"As a recommendation, when disseminating the modules or organising the piloting/exploitation events to be included infographics or short videos that explain the biomimicry process and the benefits of the modules."*

External Evaluation for D3.3

Each country contacted at least an expert on the matter, who carried out the external evaluation of the project according to a semi structured questionnaire. External evaluators from all partner countries participated on the evaluation of D3.3.

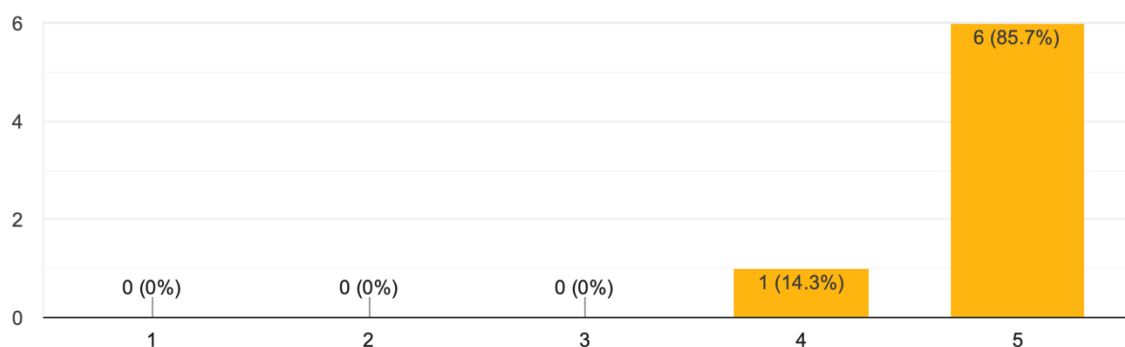**Overall quality evaluation of D3.3 Biomimicry Training Modules**

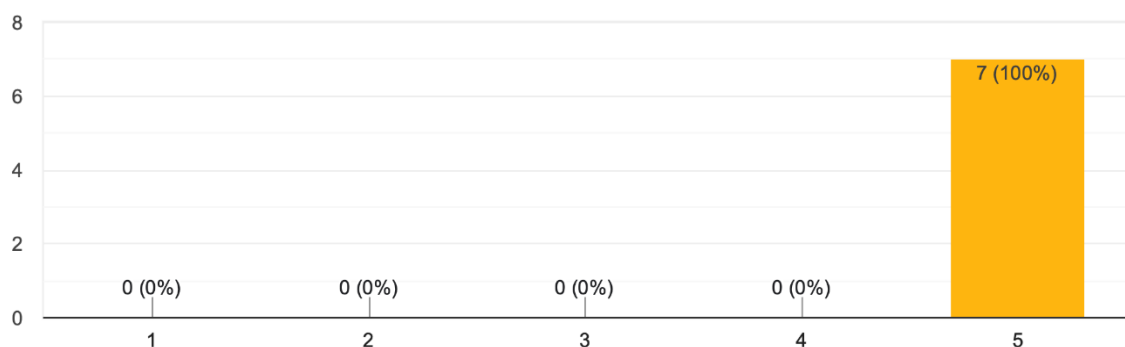Please rate the overall quality of the D3.3 Biomimicry training modules
7 responses
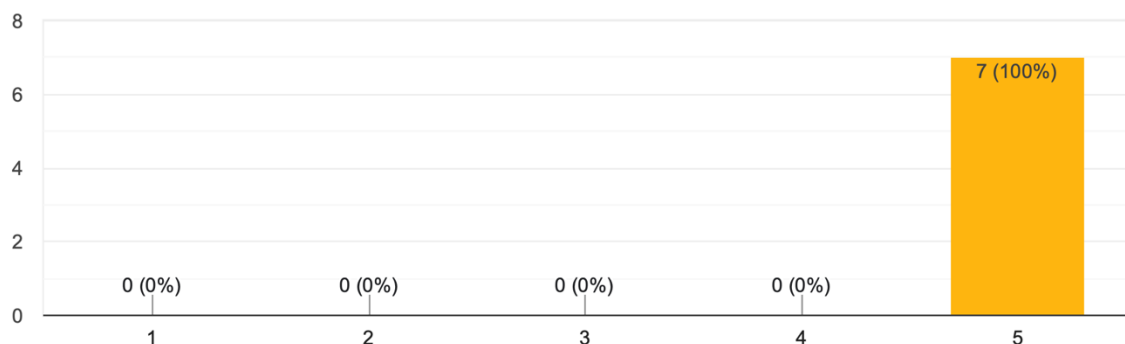
How much do you agree with this statement: "The Training Modules foster the development of sustainability skills among VET students aged 14-... design in STEM subject through PBL methodology"
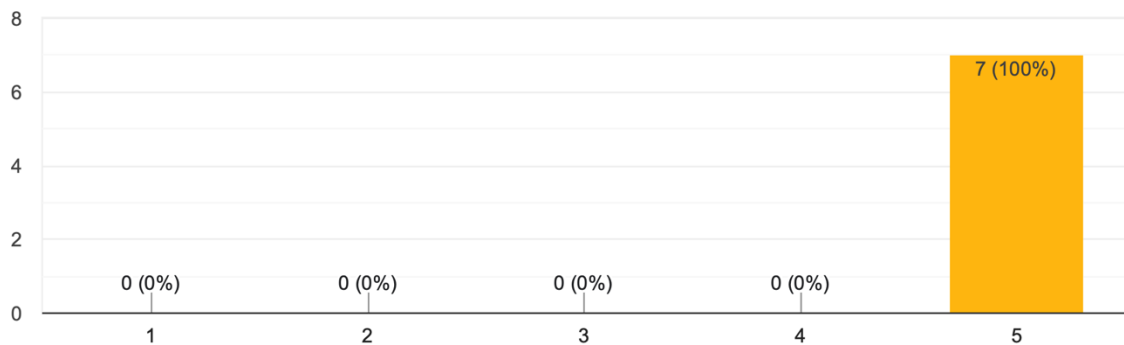7 responses

How much do you agree with this statement: "The Training Modules are a hands-on, project-based learning content that provides VET teachers with a...solutions to social and environmental challenges."
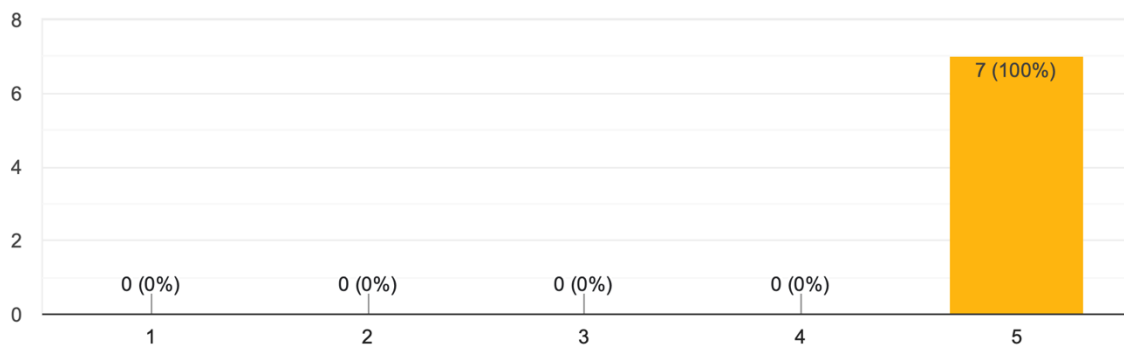7 responses

Please rate the overall quality of the contents included in the D3.3 Biomimicry training modules in relation to the project topic?

7 responses

Rate the usability and user-friendliness of the D3.3 Biomimicry training modules

7 responses

External evaluators shared their insights regarding the appropriateness, relevance, ease of use, etc) of D3.3, which have been synthesised as follows:

- **Appropriate Content and Language**: The modules are well-suited for the target age group (14–16) and use clear, accessible language.
- **Innovative and Supportive**: The content introduces sustainability through biomimicry, offering both theoretical and practical elements.
- **Pedagogically Sound**: Modules follow the six steps of the Biomimicry design process, integrated with project-based learning approaches.
- **Engaging and User-Friendly**: Designed to be easy to use, the modules promote learner engagement and are suitable for varied teaching environments.
- **Promote Key Competencies**: They foster critical thinking, creativity, collaboration, systems thinking, and ecological literacy—key for green jobs.
- **Interdisciplinary and Modular**: Content is adaptable across STEM, environmental education, and innovation subjects; modular structure supports transferability.
- **Digital Accessibility**: Although some reviewers only accessed the documents, the modules are designed to be usable across digital platforms.

- **Consistency with Project Goals**: The modules align with WP2 outcomes, ensuring coherence within the project framework.

Impact of D3.3 on target groups

External evaluators have reported that they are completely satisfied with the quality of D3.3 and that it will have high impact on both target users and beneficiaries:

Impact on Target Users (VET Teachers)

- The D3.3 Biomimicry Training Modules offer structured, ready-to-use teaching materials that simplify the integration of sustainability and biomimicry into the classroom.
- They support teachers in adopting active, project-based, and interdisciplinary learning strategies aligned with modern pedagogical standards and green transition goals.
- Teachers are empowered with practical tools to guide inquiry-based projects and bio-inspired innovation, gaining confidence and expanding their pedagogical repertoire.
- The modules contribute to professional development by introducing new strategies that integrate sustainability, creativity, and real-world relevance.
- By using these resources, educators can modernise VET curricula and deliver engaging, future-oriented education that fosters critical and ecological thinking.

Impact on Target Beneficiaries (VET Learners)

- Learners engage in meaningful, hands-on activities that promote creativity, problem-solving, and collaboration while exploring real-world sustainability challenges.
- The modules foster motivation, critical thinking, and innovation, encouraging students to design nature-inspired solutions to complex societal and environmental issues.
- By introducing biomimicry in a structured way, students develop ecological literacy and systems thinking skills essential for 21st-century green careers.
- The training modules help students take greater responsibility for their learning, improving their awareness of sustainability and their potential role in shaping a more resilient future.
- This deliverable contributes to preparing learners for emerging labour market needs, particularly in sectors focused on environmental innovation and sustainable development.

Additional information/comments

External evaluators were invited to provide additional comments on WP3. The following comments were made:
- WP3 demonstrates a strong commitment to equipping VET teachers and learners with practical, innovative tools to integrate Biomimicry and sustainability into vocational education. The deliverables—the Self-Regulated Learning Kit, the Biomimicry Handbook for Teachers, and the Training Modules—are well-aligned with the project's objectives and reflect a thoughtful, learner-centred approach. While the deliverables

are conceptually strong, as a recommendation, their impact could be increased by including infographics or short tutorials presenting the most relevant information to boost adoption and confidence among teachers, especially those less familiar with Biomimicry or digital tools.

- WP3 stands out for its coherence, quality, and practical application across diverse educational contexts. The combination of the Self-Regulated Learning Kit, the Handbook for Teachers, and the Training Modules forms a comprehensive and pedagogically sound package. One potential recommendation is to develop an accompanying quick-start guide or orientation video for teachers to help them navigate and combine the resources more easily. Additionally, incorporating examples of student outputs or testimonials could further inspire uptake and demonstrate the impact of biomimicry-based PBL in real vocational education and training (VET) settings.

- No, everything is very complete.

KPI Compliance for WP3

This report only covers the quantitative and qualitative KPI that refer to the deliverables of WP3. The KPI referring to meetings and collaboration between the partnership are covered in the respective quality evaluation report.

Quantitative KPI

KPI	Number	Yes/No (*)	Evidence
Number of learning units in training content	At least 7	Y (10)	D3.3. Biomimicry training modules
Number of solutions by nature in the resource bank	60	Y (70)	D3.1 Self-regulated learning kit
Number of challenges defined for VET learners	60	Y (70)	
Number of case studies defined for VET learners	60	Y (70)	
Number of case solutions by nature to be briefly summarised and visualised	60	Y (70)	

(*) Specified in brackets if the number is different from the planned.

Qualitative KPI

KPI	Yes/No	Evidence
-The QUALITY and RELEVANCE of the results: i) The content of the self-regulated learning - Challenges and case studies will be defined from the real-life problems and will call for the application of 21st-century skills such as problem solving, analytical thinking, creative thinking, ICT and multi-disciplinary approaches to STEM subjects. Solutions by nature are to be chosen relevant to the level of VET learners' age and knowledge	Y	D3.1 document and Internal and External Evaluation Surveys
ii) 7 learning units of learning contents will cover 6 steps of the Biomimicry Design Process and an Introduction Unit which will cover the basic concepts of biomimicry and the background knowledge for VET learners	Y	

Conclusions and Recommendations on WP3

Conclusions

- **High Quality and Relevance:** All three deliverables (D3.1, D3.2, D3.3) were rated as high quality by both internal and external evaluators. They align well with the project's goals of fostering sustainability skills through biomimicry in VET.
- **Clear Development Processes:** Partners reported smooth, coordinated development processes across all deliverables, with shared responsibilities and effective collaboration.
- **Strong Pedagogical Value:** The materials successfully integrate biomimicry, project-based learning, and sustainability, supporting active and interdisciplinary education.
- **Wide Impact:** The deliverables are expected to have a substantial impact on both educators and learners by enriching teaching methods and promoting 21st-century skills.
- **Sustainability Ensured:** Strategies are in place to maintain the use and relevance of deliverables after the project ends, including integration in teaching practices, training, and digital platforms.
- **KPI Compliance:** All quantitative and qualitative KPIs defined in the project were met or exceeded.

Recommendations

- **Enhance Accessibility:** Create quick-start guides, infographics, and short videos to help teachers, especially those unfamiliar with biomimicry, navigate and implement the resources more easily.
- **Promote Exploitation:** Encourage the use of deliverables in formal curricula and through collaborations with VET institutions and local authorities.
- **Increase Interactivity:** During dissemination and piloting events, present deliverables using interactive previews and dynamic sessions to boost user engagement.
- **Collect User Feedback:** Implement structured feedback mechanisms to continuously improve content based on the experiences of both teachers and students.
- **Foster Communities of Practice:** Establish teacher networks or communities of practice to support ongoing exchange and learning around biomimicry in VET education.