







| GENERAL INFORMATION | |
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| Module | ***Module 7: Action Research: teachers as co-creators of solutions*** |
| Unit | *7.2: Collaborative action research: designing interventions* |
| Target Group | Upper primary/ lower secondary education teachers/trainers |
| Duration | 60 minutes (personal studying time excluded) |
| Prerequisites | Completion of Unit 7.1 (*Identifying classroom challenges*). |
| ECTS | 0,04 |

| LEARNING OUTCOMES | |
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| 1 | Design and implement an action research plan with measurable outcomes. |
| 2 | Collaborate with peers to develop and refine interventions. |
| 3 | Create targeted solutions aligned with informatics goals and gender inclusion. |
| 4 | Build a detailed plan using SMART questions, clear steps, and data collection methods |

| TEACHING METHODS (select all that apply) | | | | |
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| √ | Learning by doing | √ | Peer learning |
|  | Project-based learning | √ | Hands-on learning |
| √ | Active learning strategies | √ | Collaborative learning |
|  | Blended learning |  |  |

| LEARNING MATERIAL | |
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| Required material | * PowerPoint slides (Module 7, Unit 7.2) * Sticky notes for Activity #1 ([Miro](https://miro.com/it/) or [Padlet](https://padlet.com/auth/signup?redirect_uri=https%3A%2F%2Fpadlet.com%2Fquick-create%3Flayout%3Dgrid) for online implementation) * Action Research Plan template (for Activity #3) |
| Additional resources | Hargreaves, A., & O’Connor, M. T. (2019). Leading collaborative professionalism. Centre for Strategic Education (Australia). <https://www.andyhargreaves.com/uploads/5/2/9/2/5292616/seminar_series_274-april2018.pdf>.  Dunne, F., Evans, P., & Thompson-Grove, G. (n.d.). Consultancy protocol: Framing consultancy dilemmas. Coalition of Essential Schools & Annenberg Institute for School Reform. <https://www.clee.org/wp-content/uploads/2024/07/consultancy.pdf>.  Mertler, C. A. (2019). Action research: Improving schools and empowering educators (6th ed.). SAGE Publications. <https://books.google.it/books?id=_KahDwAAQBAJ&lpg=PP1&pg=PP1#v=onepage&q&f=false>.  Vescio, V., Ross, D., & Adams, A. (2008). A review of research on the impact of professional learning communities on teaching practice and student learning. Teaching and Teacher Education, 24(1), 80-91. 10.1016/j.tate.2007.01.004. <https://rb.gy/erhvry>.  University of California. (n.d.). How to write SMART goals (v2). University of California Office of the President. <https://www.ucop.edu/local-human-resources/_files/performance-appraisal/How+to+write+SMART+Goals+v2.pdf>.  Action Research Tutorials. (2023, January 15). Writing SMART research questions for action research [Video]. YouTube. <https://www.youtube.com/watch?v=U4IU-y9-J8Q> . |

| UNIT CONTENT | |
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| Introduction | In this lesson, we explore how teachers can become **co-creators of solutions** through **collaborative action research**—a structured, reflective process that empowers educators to investigate classroom challenges, design targeted interventions, and measure their impact. Building on prior knowledge of the *Action Research Cycle* (Identify → Plan → Act → Observe → Reflect), this unit focuses on the **design phase**, where teachers work together to turn problems into actionable strategies. |
| Activities | **1. Recap from Unit 1 (2 minutes)**  **Slide 5: Recap from Unit 1**  ***Objective****:**Reactivate prior knowledge of the Action Research Cycle.*  **Step-by-Step implementation**:   1. **Review the cycle**:    * Display the 5-phase cycle: *Identify → Plan → Act → Observe → Reflect*.    * Ask teachers to recall one challenge they identified in Unit 1 (e.g., "Why do girls avoid robotics?"). 2. **Research questions**:    * Highlight the importance of *well-framed questions* (specific, actionable, measurable).    * Example: Transform *"Why do girls avoid robotics?"* → *"How can I redesign group roles to increase girls’ leadership?"* 3. **Connection to interventions**:    * Emphasize that today’s focus is moving from *problem identification* to *solution design*. |
| **2. Introduction to collaborative Action Research (5 minutes)**  **Slide 6: Introduction to collaborative Action Research *Objective****:**Define collaborative action research and its benefits.*  **Step-by-step implementation**:   1. **Definition**:    * Read aloud: *"A participatory process where educators work together to investigate shared concerns, implement solutions, and assess impact."* 2. **Benefits**:    * Introduce learners to the benefits of Collaborative Action Research(refer to the slide description for complete description). 3. **Reflection discussion**:    * Learners gather in groups of 4/5 and are invited to reflect on the following question: *Have you ever solved a teaching challenge by brainstorming with one or more colleagues? Do some of you want to share their experiences?*   ***Optional - interactive element****:*   * Poll (via [Mentimeter](https://www.mentimeter.com/) or [Slido](https://www.slido.com/features-live-polling)): *"Which benefit resonates most with you? Why?"* |
| **3. Activity #1- Challenge swap (15 min)**  **Slide 7: Activity #1- Challenge swap**  **Step-by-step implementation**:   1. **Learners select one of the challenges identified in Unit 1**:    * They write it down on a sticky note following this format:   [Student group] + [behavior/skill gap] + [context].   1. **Intervention brainstorm**:    * Learners gather in groups of 3, teacher A shares their challenge with the two other colleagues. Each group is given the following task:      1. *Ask clarifying questions to uncover root causes (e.g., ‘Do you think it’s confidence, interest, or peer dynamics?’)*      2. *Brainstorm angles the teacher might not have considered (e.g., ‘Could the debugging interface feel intimidating?’ or ‘Have you tried peer debugging pairs?’)* 2. **Intervention brainstorm (round 2 and 3):** repeat for teachers B and C. 3. **Refinement**:    * Learners revise their original challenge based on group feedback using the checklist: *specific, actionable, measurable.*   **Bridge to the focus on intervention:** Passing from thinking ‘What’s wrong?’ to ‘How can we fix it?’ |
| **4. Key principles for effective interventions (2 minutes)**  Slide 8 - This slide is merely theoretical.  List the 5 key principles for effective interventions (refer to the speakers’ notes for detailed information):  1 – Aligned with informatics goals  2 – Promotes gender inclusion  3 – Rooted in identified causes  4 – Within your control  5 – Measurable outcomes |
| **5. Example of intervention strategies (5 minutes)**  **Slides 9 & 10 Objective:**transform identified challenges into actionable, inclusive intervention strategies using evidence-based approaches.  Case study analysis starting from the following challenge: Girls disengage during competitive coding challenges.   * Introduce learners to each of the 4 different strategies that can be implemented in the case of our case study, how they address inclusion, the measurable outcomes that can be defined based on the chosen strategy and implementation tips. |
| **6. Activity #2 Intervention - brainstorm (14 min)**  **Slide 11 1. Group formation (1 minute)**   * Organize small groups of 3-4 teachers.   **2. Challenge sharing (4 minutes)**   * **Structure**:   + Each teacher presents their challenge in 1 minute. Teachers are invited to listen actively and take notes on common themes.   **3. Brainstorming interventions (5 minutes)**  Task: For each challenge, brainstorm 2-3 intervention strategies.  Guiding questions:   * How does this align with informatics education principles? * Does it actively promote gender inclusion? * Is it practical to implement within 2-4 weeks? * What data could we collect to measure impact?   **4. Group share: each group presents one intervention idea to the group (4min)** |
| **7. From ideas to action – building your Action Research Plan (3 minutes)**  **Slides 12-14: From ideas to action – building your Action Research Plan**  Introduce learners to the 5 steps for building their Action Research Plan (refer to the speakers’ notes for detailed content):   * Research question (SMART) * Intervention strategy * Implementation steps * Data collection methods * Collaboration plan |
| **8. Activity #3 plan development (12 minutes)**  **Slide 15: Activity #3 plan development** Learners fill their own Action Research Plan template (deal or – if you are online - share the Action Research Plan template).   * 1. Based on their refined research question, learners draft an action research plan in which they include 1)their refined *research question*; 2) their *intervention strategy*, 3) 3 *implementation steps* (or more), 4) the *data collection methods* they will resort to, and eventually 5) the *collaboration plan* which lists the different collaboration they will have for the successful implementation of their Plan.   2. Once they are done and if there is remaining time, learners pair up to give and receive feedback about their Plan using the following criteria:      + Clarity of research question      + Feasibility of intervention      + Appropriateness of data collection      + Potential for collaboration |
| **9. Wrap up & next steps (2 minutes)**  **Slide 16: Wrap up & next steps** Summarize the key takeaways and introduce the next steps! |
| Assessment | If you have remaining time you can initiate a discussion about the learning session and the entire Module 7. |

| KEY TAKEAWAYS | |
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| Reflection and Conclusion | **Slide 16: Wrap up & next steps**  Summarize the key takeaways and introduce the next steps! |
| Homework/ Additional Tasks | / |