Challenge Based Learning – Nano Challenge

Educator engages in a Nano Challenge to support the skills and mindsets needed for more intensive and broader Challenge Based Learning experiences.

**Key Method**
The educator uses a modified version of the Challenge Based Learning framework to develop and document a Nano Challenge.

**Method Components**

**Challenge Based Learning**
Challenge Based Learning (CBL) provides an efficient and effective framework for learning while solving authentic Challenges. The framework is collaborative and hands-on, asking all participants (students, teachers, families, and community members) to identify Big Ideas, ask good questions, discover and solve Challenges, gain in-depth subject area knowledge, develop 21st-century skills, and share their ideas.

**Nano Challenges**
Nano Challenges are shorter in length, focus on a specific content area or skill, have tight boundaries, and are more teacher-directed.

- The Learners typically start the Challenge without identifying a Big Idea or Essential Question. The challenge can be teacher or student created.
- The process includes the Investigation and Act phases but at a significantly lower level of intensity and often stopping short of implementation with an external audience.
- Often, Nano Challenges are used as scaffolding, leading to more significant Challenges or used during longer Challenges to address specific concepts.
- Nano Challenges can be used when the learning environment is constricted by curriculum, time, or assessments.

The Nano Challenge template helps guide the process:
[challengebasedlearning.org](http://challengebasedlearning.org)

**Challenge Based Learning Framework**
The Challenge Based Learning Framework comprises three interconnected phases: Engage, Investigate, and Act. Each phase includes activities that prepare the Learners to move to the next stage. The Nano Challenge follows the general framework but shortens and simplifies the process.

- **Phase 1: Engage**
  In the Nano Challenge, the Engage stage starts with identifying the challenge. The challenge can be presented by the teacher or can be developed by individuals or groups of learners. The challenge addresses a specific content area or skill.

  In a Nano Challenge experience, the challenge identifies the learning goal. A Nano challenge can be as specific as “Pass the test” or “Demonstrate the importance of a variable.”

- **Phase 2: Investigate**
All Learners plan and participate in planning a short learning journey that leads to solving the Nano Challenge.

Guiding Questions create a pathway to the knowledge and skills the Learners will need to develop a Solution to the Challenge. In the Nano Challenge, the teacher pre-identifies critical questions that align with the learning goal but also wants the students to ask important questions, like, "Why is this important?" "How will I use it?" "How does this connect with something I already know?" etc. Guiding Activities and Resources are used to answer the Guiding Questions developed by the Learners. In a Nano Challenge, these activities may be pre-planned by the teacher and be very specific activities. Input from the learners is valuable but will be constrained by the time available.

In the Nano Challenge, the synthesis of the lessons learned through the Guiding Activities will be short but is still valuable for building meta-cognitive skills.

- **Phase 3: Act**

Evidence-based Solutions are developed, implemented with an authentic audience and then evaluated based on their results. In the Nano Challenge, the Act phase is shortened considerably as the solutions will be narrower and demonstrated immediately in a narrow context (typically the classroom).

Solutions will be more specific to the narrower challenge but should allow for some level of personalization and creativity by the learner. Implementation will be immediate and in a narrower context (typically the classroom). Evaluation will be guided by the teacher with input by the students.

**Reflection and Sharing**

In the Nano Challenge, the learners participate in short reflections at the end of the challenge and share their solutions with their peers.

**Supporting Research**


- Additional research on CBL [http://cbl.digitalpromise.org/toolkit/](http://cbl.digitalpromise.org/toolkit/)

**Resources**


Submission Guidelines & Evaluation Criteria

Following are the items you must submit to earn this micro-credential and the criteria by which they will be evaluated. To earn this micro-credential, you must receive a passing evaluation for Parts 1, 3, and 4 and a “Yes” for each component of Part 2.

Part 1. Overview Questions
(200-word limit for each response)

- **Activity Description**: How, where, and with whom did you implement the Nano Challenge? Please describe the overall learning context and the role of the Nano Challenge.
  - **Passing**: The description is clear with sufficient detail to illustrate what you and or the students did to learn the framework.

- **Activity Evaluation**: How do you know that you and your students increased proficiency and knowledge of the CBL framework? What evidence can you present?
  - **Passing**: Activity evaluation process and evidence are clear, appropriate, and sufficient to evaluate the competencies.

Part 2. Work Examples/Artifacts
Submit two student examples that demonstrate an understanding of the elements and role of a Nano Challenge. Examples of completed Nano Challenge matrices can be submitted along with any supporting examples.

<table>
<thead>
<tr>
<th>“Yes”</th>
<th>“Almost”</th>
<th>“Not Yet”</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Engage</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The work demonstrates an actionable challenge based on the overall learning goals and is meaningful to the learners.</td>
<td>The work demonstrates an actionable challenge based on the overall learning goals.</td>
<td>The work demonstrates a challenge that is either too broad to be actionable or too narrow in that it includes the solution.</td>
</tr>
<tr>
<td><strong>Investigate</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guiding Questions</td>
<td>Guiding Questions</td>
<td>Guiding Questions</td>
</tr>
<tr>
<td>A set of questions created by the teachers and students that leads toward a specific solution but allows for personalization and creativity.</td>
<td>A set of teacher created questions that leads toward a specific solution with some flexibility for the learners.</td>
<td>A narrowly focused “grocery list” of teacher created questions that leads toward a specific solution.</td>
</tr>
<tr>
<td>Guiding Activities and Resources</td>
<td>Guiding Activities and Resources</td>
<td>Guiding Activities and Resources</td>
</tr>
<tr>
<td>Teacher and student selected activities and resources that correspond to the guiding questions.</td>
<td>A teacher created set of activities and resources with some flexibility for student choice.</td>
<td>A teacher created set of activities and resources.</td>
</tr>
<tr>
<td>Research Synthesis</td>
<td>Research Synthesis</td>
<td>Research Synthesis</td>
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<tr>
<td>The research synthesis is focused on the process and solution.</td>
<td>There is a research synthesis, but it is focused solely on the solution.</td>
<td>There is no synthesis of the knowledge collected from the guiding activities and resources.</td>
</tr>
<tr>
<td><strong>Act</strong></td>
<td></td>
<td></td>
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<tr>
<td>Solution</td>
<td>Solution</td>
<td>Solution</td>
</tr>
<tr>
<td>The solution satisfies learning goals and demonstrates student</td>
<td>The solution satisfies learning goals but</td>
<td>The solution satisfies learning goals but demonstrates no</td>
</tr>
<tr>
<td>Reflect</td>
<td>Ownership and creativity.</td>
<td>Demonstrates limited student ownership.</td>
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<tr>
<td>---</td>
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<tr>
<td>Implementation</td>
<td>The solution is implemented and demonstrates student ownership.</td>
<td></td>
</tr>
<tr>
<td>Evaluation</td>
<td>The students and teacher evaluate the solution and the process.</td>
<td>The solution is evaluated by the teacher.</td>
</tr>
</tbody>
</table>

**Part 3. Student Reflection**

Provide two examples of student reflections. Use the following questions as a guide (200-word limit for each reflection):

- How did the process help you find a solution to your challenge?
- How did the process help you better understand how you solve problems?
  - **Passing:** The learner’s reflections clearly indicate how the activity affected the participants and show how the experience will affect the learner’s future practice. The reflections are specific and convincing.

**Part 4. Educator Reflection**

Provide a reflection on what you learned through the process (200-word limit for each response):

- What was the impact of engaging your mentee in the growth-mindset activity?
- How will experiencing these activities shape your instructional coaching practice in the future?
  - **Passing:** Teacher reflections clearly indicate how the activity affected both the students and the teacher and clearly state how the experience will affect the teacher’s future practice. The reflections are specific and convincing.