INQUIRY LEARNING WITH STARTSOLE: EVALUATION REPORT

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Inquiry Learning with StartSOLE Evaluation Report

BACKGROUND AND GRANT PROJECT SUMMARY

The StartSOLE organization enables educators to apply the concepts of self-organized learning environments to their classrooms or learning centers. The organization was founded in 2014 through a four-year philanthropic angel investment to support design, implementation, piloting, and testing of a mobile application provided free to educators. Educators have been increasingly beholden to compliance mode for specific subject matter content and educational standards.

Inquiry approaches, when effectively implemented, put the student the center of their own learning. The challenge is the time it takes to prepare and implement in a classroom setting. The StartSOLE platform was designed to provide educators with a tool to incorporate inquiry learning into the natural classroom environment with great ease.

Inquiry style learning is powerful. The opportunity for students to guide their own learning and transfer skills from one context to another builds foundational capability that students will rely on for a lifetime. Research shows that these pedagogical approaches positively change the behavior for both educators and students as their interactions and engagement with each other deepens in the context of the problem being examined.

Through the work conducted under this grant, StartSOLE helped facilitate educators' ability to seamlessly apply inquiry learning without prior training. StartSOLE pilot studies have shown the method can be used directly by educators, in their natural environment, with no special affordances required. Since inception, the StartSOLE experience has reached more than 10,000 educators and 300,000 K-12 students.

Although the application can be used effectively by teachers who find it on their own, and growth of StartSOLE's use has been significant through this channel of distribution, it lacks the intentionality of distributing it on a district-wide basis to help teachers and students at scale. ***In the project funded by the Jennings Foundation, StartSOLE worked with the North Point Educational Service Center (ESC) to establish a deliberate approach to reach educators in 7-10 northern Ohio school districts, with an estimated 1,000 teachers completing the experience in the 2018-2019 school year.***

Teachers were introduced to StartSOLE through intentional guidance and mentoring, thus broadening the distribution to more teachers with more certainty. Once completed for a northern band of Ohio school districts, a community of practice would exist with teachers serving as mentors and trainers to help encourage and sustain the use of these methods.

OVERVIEW OF THE GRANT PROJECT PLAN

As described in the original grant proposal, bringing StartSOLE to northern Ohio districts took place through coordination with seven ESC's, led by North Point ESC. A train-the-trainer model was used for the work; which raised the sustainability potential of the effort beyond the grant period, because the experiential knowledge would be embedded in multiple, local ESC personnel.

Two professionals served as lead personnel from each ESC to orient the representatives to StartSOLE, address their questions, and help them schedule four professional development (PD) sessions for the districts in their region. StartSOLE representatives participated as lead trainer in first session for each ESC. Following this, StartSOLE co-led the second session with the ESC lead personnel. From that point forward, StartSOLE observed the remainder of the PD sessions in person or virtually. This approach allowed each ESC the capacity to conduct future sessions on their own.

At each training session, trainees participated in StartSOLE sessions designed to spark their own inquiry on a variety of topics and help them to get a first-hand understanding of the SOLE process so as to become better trainers of the process. Trainees also learned how to utilize the different tools present on the StartSOLE platform and how to leverage the existing StartSOLE network (consisting of over 8,600 educators from 48 states and 70 different countries).

As part of the support provided to these trainers, StartSOLE developed a customized version of www.startsole.org website focused specifically on the needs of educators in the ESCs, as well as conducted monthly check-in calls and webinars. The PD events were designed to provide practitioners with everything they needed to start training educators in their area to use StartSOLE in their learning environment immediately. This approach was not only effective in helping the trainers learn how to lead StartSOLE training sessions in their regions; it also helped them get comfortable using the supports provided to ensure that reflection and improvement of these educational approaches become embedded into the practices of the teachers, resulting in a more effective behavioral change strategy.

The StartSOLE development team also created ESC specific on-line dashboards, and trained ESC leads in how to interpret the information. On a monthly basis, check-in calls utilized this data to deeply explore where StartSOLE is being used, which also enabled understanding behaviors of teachers that are regularly using StartSOLE and establishing plans to help those that need additional support.

EVALUATION METHODOLOGY AND SOURCE OF EVIDENCE

The evaluation for the Jennings Grant was conducted using the goals and milestones outlined in the grant application from July, 2018 as the standard against which performance of the grant was examined. Data and evidence for the evaluation came from three sources:

- **The StartSOLE database**. This database contains information populated automatically by the StartSOLE technology platform as users download and apply the StartSOLE application. On a daily basis, the cloud-based data is archived and contains records for each StartSOLE user. This included the district where they teach, their primary content expertise and grades taught, and other demographic data. This information was provided in a de-identified fashion to the evaluator using a snapshot of the StartSOLE data from August 7, 2019. In addition, the StartSOLE database also contains every SOLE activity created by the user, and multiple activities can be attributed to a single StartSOLE user depending on how many soul experiences they create. The database contains tens of thousands of records. For the purposes of this evaluation, ZIP codes associated with the pertinent educational service centers were filtered from the total database to determine the number of users that participated in StartSOLE experiences. This number was compared to a historical figure obtained by the evaluator for the status of StartSOLE users in the same area as of July 1, 2018.
- **StartSOLE lesson plans**. Use of the StartSOLE facilitation application automatically generates a lesson plan that includes facilitation instructions for specific StartSOLE activity as well as a mapping of the topic to the applicable Ohio education standards. An example can be found in Appendix A.
- **Calendar Information and Electronical Submitted Training and Meeting Announcements.** This information was used to examine the number of training sessions and other milestones associated with the plan in the grant application. In these cases, evidence was collected to validate the existence of training sessions as determined by e-calendars and published agenda items by trainers involved throughout the grant period.

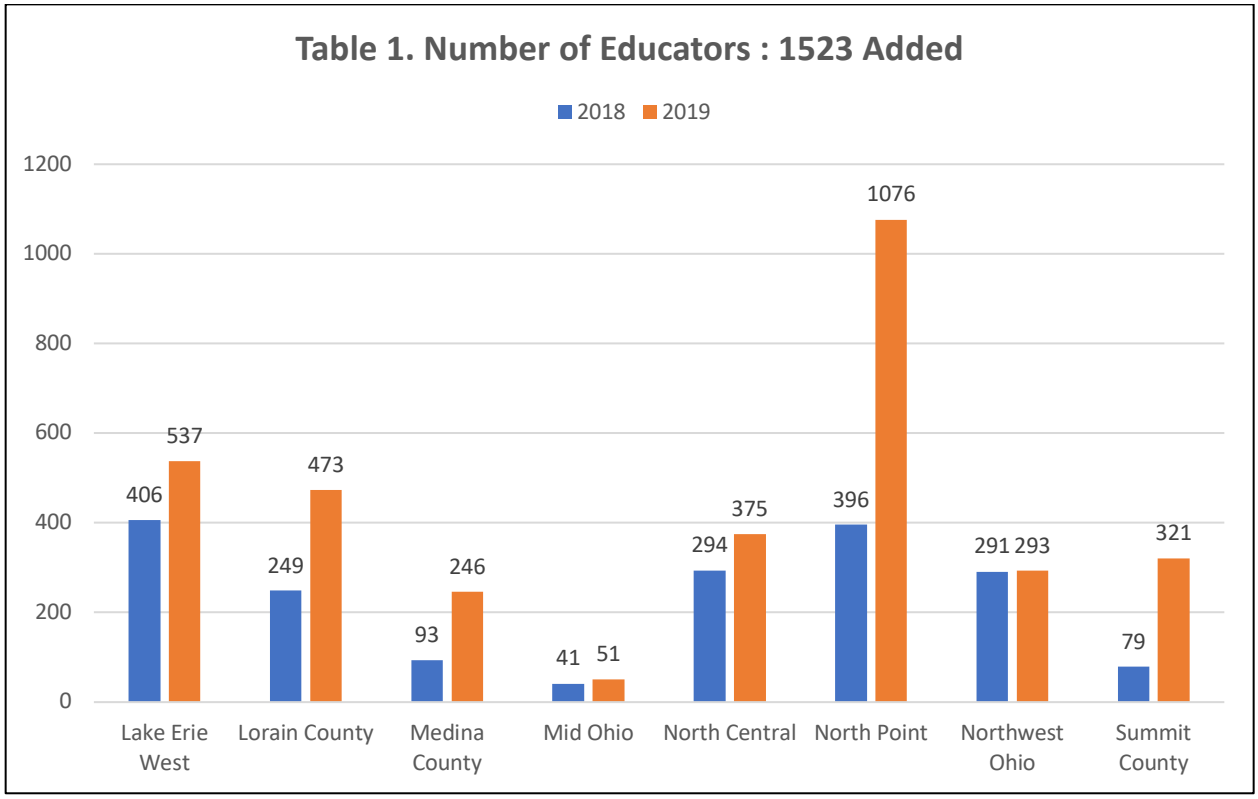
- **Qualitative information.** This information was obtained using purposive sampling of the database to explore the variety of SOLE big questions, content areas, and grade levels utilizing the StartSOLE technology platform in the grant-specific geographic regions. *It should be noted that no evaluation of the specific effectiveness of a StartSOLE experience, its relationship to the achievement of students, or the activities associated with teacher effectiveness was part of this evaluation.* The qualitative information was explored solely to gain a sense of how StartSOLE was being used in the service districts as a result of the intentional distribution and training.

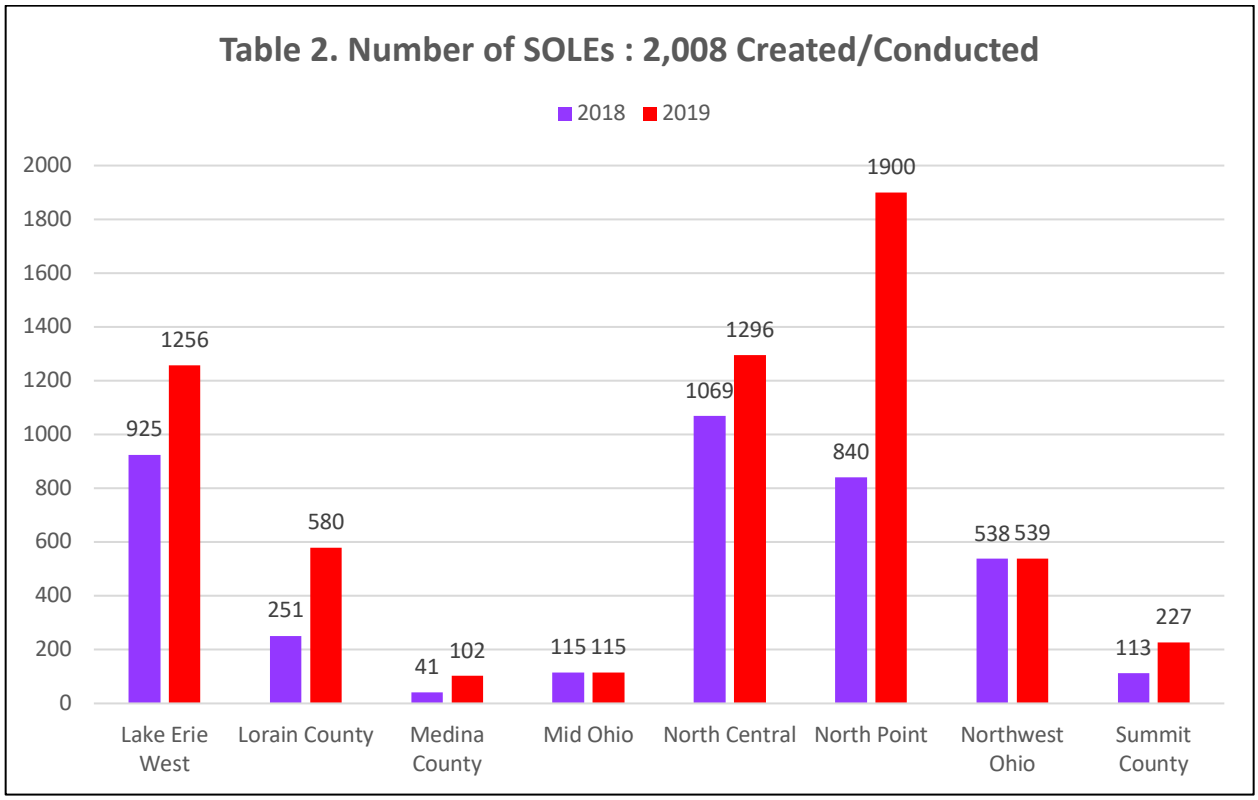
To confirm that information being examined by the evaluator using the database was appropriate and representative of the period of performance associated with the grant, the evaluator interviewed the grants principal investigator to review data to ensure that the information being collected was reflective of the information being developed as part of the grant.

RESULTS OF THE EVALUATION

The primary objective of this project was to expand the number of StartSOLE users. Specifically, through a deliberate approach, to reach educators in 7-10 northern Ohio school districts, with 1,000 teachers completing the experience in the 2018-2019 school year.

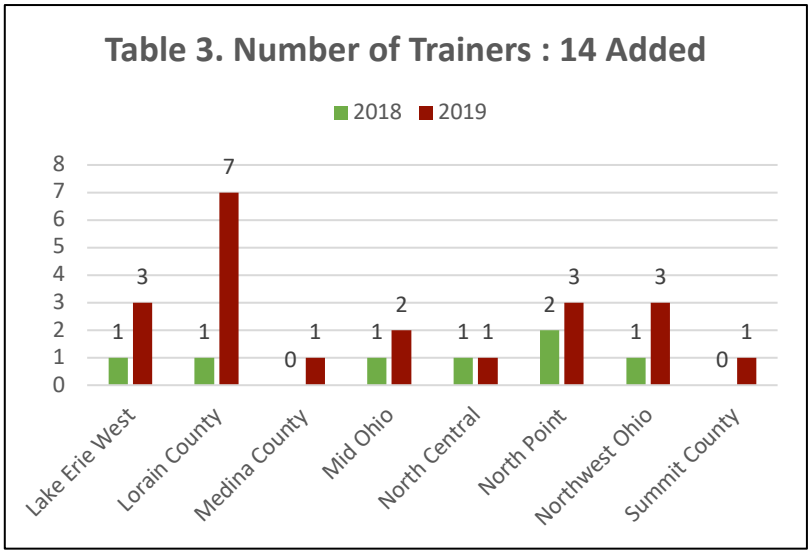
There were eight school districts involved with the project. The following Tables 1 and 2 show the number of educators involved at the beginning of the study (July 1, 2018) and at the end of the study (July 1, 2019) and the number of SOLEs at the beginning and the end of the study.





A total of 1,523 new StartSOLE educators were added during the grant period. This exceeds the goal of 1,000 new users. A total of 2,008 StartSOLE activities were planned and implemented by these users over the same period.

As a train-the trainer model, 14 new trainers were added in the service regions of interest. These individuals are capable of providing continuing support to users beyond the grant period without the aid of StartSOLE staff or the Principal Investigator.



Regarding the train-the trainer milestones outline in the grant proposal, the following results further detail the activities involving these individuals:

Project Results		
Milestones	**Completed**	**Source of Evidence**
Convene leads from each ESC to train representative and schedule their four PD sessions for the year with their schools	Yes	PI Calendar Examination
Create custom ESC dashboard for the project	Yes	StartSOLE.org
Conduct a minimum of four PD sessions with regional school districts	Yes	e-communications via targeted messaging to participating districts
Conduct monthly check-in calls to use the dashboard to monitor local activity	Yes	e-communications via targeted messaging to participating districts
Conduct two workshops for all ESC representatives to discuss and disseminate lessons-learned to date	Yes	PI Calendar Examination
Gathered dashboard data, interviewed participants, collected results and artifacts, and prepared evaluation report	Yes	StartSOLE.org Cloud Data (De-identified)

DISCUSSION

Adoption of StartSOLE facilitation methods by teachers takes place naturally as educators find out about the application and choose to explore it in their classroom. The natural spread of StartSOLE through word-of-mouth and social networking awareness has created steady growth in the number of educators in the United States and globally. The Jennings Grant sought to increase the concentration of StartSOLE qualified educators in Northern Ohio through a deliberate program of professional development, webinars, train-the-trainer methodologies, and other techniques to intentionally reach out to teachers and educators in this region. 1,523 educators were added over the program period. It is clear that the increase is due to the concerted efforts enabled by the grant program funding. Using the historical growth rate of StartSOLE by normal word of mouth adoption would have predicated between 185-555 new users (10%-30% growth per year).

The author believes that the results achieved through this grant are transferable to other regions in Ohio using the same project plan. The potential exists to significantly increase the number of Ohio educators using StartSOLE by distributing the results of this grant and encouraging others to replicate it in their regions.

EVALUATOR DISCLOSURE STATEMENT

The author of this evaluation is experienced in the review of teacher professional development and inquiry learning programs and was trained in evaluation methods from the Johns Hopkins University School of Education. The author occasionally serves as a strategic advisor to StartSOLE LLC and, as such, has an understanding of the theories of self-organized learning environments and how they are implemented using the StartSOLE technology platform. While the author has familiarity with StartSOLE programs, *the author had no involvement or association with the design or implementation of programmatic activities associated with the Jennings grant program.* This independence and separation from the program fully comply with research evaluation ethics and best practices.

The author may be contacted at rosen.rd@gmail.com and 614-600-8440 for inquiries regarding this report.

APPENDIX A
SAMPLE STARTSOLE LESSON PLAN

EXAMPLE 1 - WHAT WOULD HAPPEN TO EARTH IF ALL OF THE BEES DISAPPEARED?

What would happen to Earth if all of the bees disappeared?	
Teacher: XX	School: XX
Grade: Second Grade	Date: XX
Subject: Science	Lesson Duration: 60 minutes
Target Standards: Fourth Grade See Appendix 1 for details on embedded ELA standards	

Procedure

Time/Task	Description
Preparation (5 minutes)	Before the class arrives, post big question in the classroom and make sure 3 internet enabled devices are online. Prepare materials for group work: Writing tools Poster paper Physical resources (books, supporting content)
Introduction (2 minutes)	Introduce SOLE process and review ground rules. Introduce our big question to the class. 2 groups (6 total students) I will create 2 student groups (6 total students).
Investigation (44 minutes)	Students investigate the answer to the big question using their group's device. Groups will share their work.
Review (4 minutes)	Each group will have 2 minutes to present their research to the class and discuss. Each group is expected to share their sources, present creatively, and not rely on notes.
Exit Ticket (10 minutes)	Each student will have 2 minutes to complete an exit ticket answering the big question individually.

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Relevance & Rationale

Content Knowledge Objective	Helping students connect prior knowledge to a current topic
21st Century Learning and Innovation Skills	The SOLE process involves: Critical thinking and problem solving Collaboration Agility and adaptability Initiative and entrepreneurialism Effective oral and written communication Accessing and analyzing information Curiosity and imagination All of which are important skills outlined in the Framework for 21st Century Learning.

Assessment Criteria for Success

Active Engagement	Students will engage with the content as described by Schlecty's Engagement Framework.
Critical Thinking	Students will engage with content at higher levels of Webb's Depth of Knowledge.
Communication	Students will present their findings to the class and share their sources.
Creativity	Students use creativity to address complex challenges and share their findings with the class.
Collaboration	Students work effectively with their groups and demonstrate flexibility.

Reflection

After the SOLE Session, I will reflect on the following questions:

- How effectively were students introduced to this new concept?
- Were students actively engaged during their investigation?
- What type of thinking were students doing during the SOLE session?
- Were students collaborating and listening to each other?
- How well were students using technology during this lesson?

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Embedded ELA Standards

College & Career Readiness

- CCSS.ELA-LITERACY.CCRA.R.2 - Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.
- CCSS.ELA-LITERACY.CCRA.R.7 - Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.
- CCSS.ELA-LITERACY.CCRA.W.7 - Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.
- CCSS.ELA-LITERACY.CCRA.SL.4 - Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.
- CCSS.ELA-LITERACY.CCRA.SL.5 - Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.

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Embedded ELA Standards (continued)

Reading: Informational Text

- CCSS.ELA-LITERACY.RI.2.1 - Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.
- CCSS.ELA-LITERACY.RI.2.2 - Identify the main topic of a multiparagraph text as well as the focus of specific paragraphs within the text. CCSS.ELA-LITERACY.RI.2.3 - Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.
- CCSS.ELA-LITERACY.RI.2.4 - Determine the meaning of words and phrases in a text relevant to a grade 2 topic or subject area.
- CCSS.ELA-LITERACY.RI.2.5 - Know and use various text features (e.g., captions, bold print, subheadings, glossaries, indexes, electronic menus, icons) to locate key facts or information in a text efficiently. CCSS.ELA-LITERACY.RI.2.6 - Identify the main purpose of a text, including what the author wants to answer, explain, or describe.
- CCSS.ELA-LITERACY.RI.2.7 - Explain how specific images (e.g., a diagram showing how a machine works) contribute to and clarify a text. CCSS.ELA-LITERACY.RI.2.8 - Describe how reasons support specific points the author makes in a text.
- CCSS.ELA-LITERACY.RI.2.9 - Compare and contrast the most important points presented by two texts on the same topic.

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Schlecty's Levels of Engagement

The Schlecty Center on Engagement has produced a framework for measuring student engagement in the classroom. During your SOLE Session you will be able to take notes on student engagement, and you may find these distinctions to be a helpful guide.

ACTIVE ENGAGEMENT

Students...

- See the SOLE as personally meaningful.
- Persist in the face of difficulty
- Emphasize perfection and "getting it right."

STRATEGIC COMPLIANCE

Students...

- Only work on the SOLE if for a grade, prize, or your approval
- Aren't personally satisfied or interested by their work

RITUAL COMPLIANCE

Students...

- Find no meaning in the SOLE
- Work only to avoid confrontation or discipline
- Work to satisfy the minimum requirement: "What do I have to do to get this over and get out?"

RETREATISM

Students...

- Are disengaged and emotionally withdrawn
- Feel unable to do what is being asked or are uncertain about what they should do
- Sees little that is relevant to their life in the work

REBELLION

Students...

- Are actively disengaged and pursuing their own agenda
- Are acting out - and often encouraging others to rebel

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P21 Framework

People in the 21st century live in a technology and media-driven environment, marked by various characteristics, including access to an abundance of information, rapid changes in technology tools, and the ability to collaborate and make individual contributions on an unprecedented scale. Effective citizens and workers of the 21st century must be able to exhibit a range of functional and critical thinking skills related to information, media and technology.

INFORMATION LITERACY

- Access and Evaluate Information
- Access information efficiently (time) and effectively (sources)
- Evaluate information critically and competently
- Use and Manage Information
- Use information accurately and creatively for the issue or problem at hand
- Manage the flow of information from a wide variety of sources
- Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information

MEDIA LITERACY

- Analyze and Create Media
- Understand both how and why media messages are constructed, and for what purposes
- Examine how individuals interpret messages differently, how values and points of view are included or excluded, and how media can influence beliefs and behaviors
- Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of media
- Understand and utilize the most appropriate media creation tools, characteristics and conventions
- Understand and effectively utilize the most appropriate expressions and interpretations in diverse, multi-cultural environments

ICT (Information, Communications and Technology) LITERACY

- Apply Technology Effectively
- Use technology as a tool to research, organize, evaluate and communicate information
- Use digital technologies (computers, PDAs, media players, GPS, etc.), communication/networking tools and social networks appropriately to access, manage, integrate, evaluate and create information to successfully function in a knowledge economy
- Apply a fundamental understanding of the ethical/legal issues surrounding the access and use of information technologies

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SOLE and Webb's Depth of Knowledge

Webb's Depth of Knowledge construct is a hierarchy, where every level describes a more complex level of thinking (Aungst, 2014). There are four levels to this hierarchy:

1. Recall and Reproduction

2. Skills and Concepts

3. Strategic Thinking

4. Extended Thinking

Each task can be categorized into one of these levels based upon the complexity of thinking required to complete said task (Aungst, 2014). Tasks requiring more than one mental step are categorized as Level 2: Skills and concepts. Tasks requiring planning, evidence, and more abstract thinking are Level 3: Strategic thinking tasks. Tasks requiring a synthesis of information from a multitude of sources are categorized as Level 4: Extended thinking.

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