



VIRGINIA DEPARTMENT OF EDUCATION'S **Training and Technical Assistance Center** at Old Dominion University

T-TAC NETWORK NEWS

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To See It is to Understand It!

Dr. Kerry Lambert, Project Director

Math educator and author Dr. John Van de Walle (2001) noted that mathematical knowledge consists of internal or mental representations of ideas that the mind has constructed. To help students construct mental representations of abstract math concepts and build math confidence, they need many opportunities to create a variety of visual patterns and to use pattern-based thinking. Such explorations present unlimited opportunities for problem solving and building mathematical understanding.

Application

Provide students with manipulatives such as pattern blocks, cubes, toothpicks, plastic links, buttons and other concrete objects so they can create and recognize various patterns that include: color sequences (e.g. RRB for red red blue blocks); alternating size patterns such as small-large small-large; or one more and one less patterns. Students can challenge other students to describe or extend their patterns. Have students create a mosaic design (tessellation) made of different shapes using pattern blocks. They can color congruent shapes of the mosaic design with the same color to create a visual representation of a fraction of the whole design. See this lesson in action as students in one fifth grade class demonstrate what [fraction](#) of their pattern block design is red. Children can recognize core patterns in motion, color, designs, sound, rhythm, music, position, sizes, and quantities.

In reading, students recognize patterns in rhythm, in rhyming, in syllables and in sequencing. For example, kindergarten children often use sound and rhythm to clap out patterns that repeat, such as clap-clap-clap-pause, clap-clap-clap-pause, and so forth. Stories such as *Ten Black Dots* by Donald Crews, *Jump, Frog, Jump* by Robert Kalan, *The Little Red Hen* by Margot Zemach, and various books by Dr. Seuss offer such opportunities. Visual patterns can be shown using picture representations for children's books such as *1 Hunter* by Pat Hutchins, *Rooster's Off to See the World* by Eric Carle, *The Patchwork Quilt* by Valerie Flournoy, and *The Keeping Quilt* by Patricia Polacco. Have fun engaging children in a wide variety of activities that encourage pattern based thinking.

Reference

Van de Walle, J. (2001). *Elementary and middle school mathematics: Teaching developmentally* (4th ed). New York, NY: Addison Wesley Longman.

Check out the *UPS* of Problem Solving

Laura Beller, Curriculum and Instruction Specialist

Research

A “learning by doing” approach to problem solving improves students’ abilities to think about mathematics in a way that can be applied to many different types of problems. In the *UPS Check* process, students can learn to apply a four-step process to various problems involving simple tasks as well as more complex multi-step problems (Van de Walle, Karp & Bay-Williams, 2013).

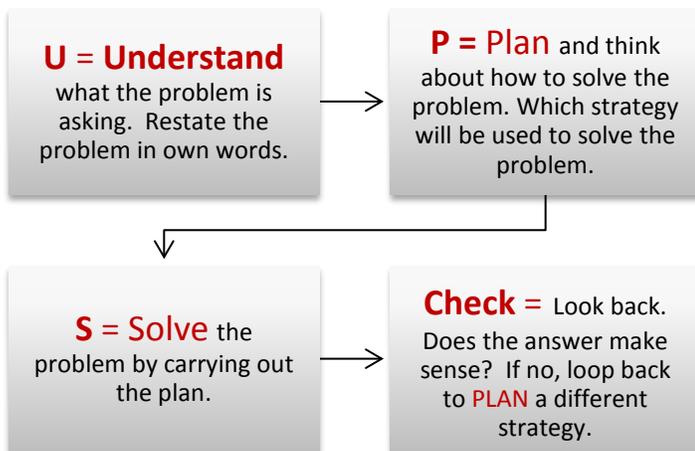
Application

As suggested by Van de Walle, Karp & Bay-Williams (2013), “Don’t take the problem solving out of problem solving” (p. 34). Rather, teach *through* problem solving, and teach students to solve problems with effective processes and strategies. Pose tasks carefully. Find tasks that encourage students to practice a [particular problem solving strategy](#). As students’ grapple with the math, and discuss their ideas about their solutions, they develop skills and learn to organize their thinking (Van de Walle, Karp & Bay-Williams, 2013).

The **UPS Check** Problem Solving Process

Implementing the strategy:

- Select an appropriate problem for the [strategy](#) being practiced.
- Students work in groups and use the strategy to discuss, solve problems, and represent ideas on poster paper.
- Students discuss, work and reason through, and solve the problem. Teacher observes and interacts with students as they work, being sure to label the strategies used by students.
- Students share their results.
- Point out and discuss the strategies used by the students; pose questions that lead students to see how the strategy assisted them in the process.



Resources

- See examples of a UPS Check teaching procedure with VA Mathematics SOLs and the “Draw a Picture” strategy: Grade 4 (multi-step problem solving) and Grade 2 (fractional value of members of a set);
- View a video, [Understanding: UPS Check](#) to see a 4th grade teacher using the strategy to solve a problem;
- Follow these links to find a [UPS Check Poster](#) and a [UPS Check Problem Solving Mat](#);
- [Mathematics vocabulary word wall cards](#) published by the VDOE, provide a visual display of mathematics content words and can assist students in understanding the language of math problems;
- [Practical Advice for Teaching Problem Solving](#) (VDOE Math Institute 2013 handout) provides hints and “teacher talk” for working with students.

Learning Opportunity

Look for information on the [T-TAC ODU website](#) (conference section) about an upcoming **Summer Math Training Institute**. Details are currently pending and should be available in May.

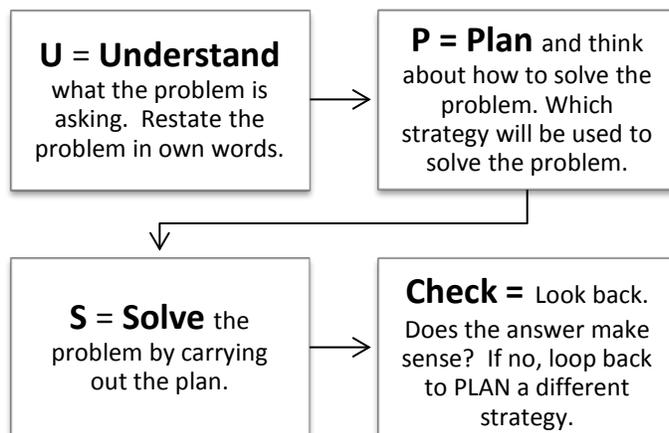
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Van de Walle, J., Karp K., Bay-Williams, J. (2013). *Elementary and middle school mathematics, Teaching developmentally* (8th ed). New York, NY: Pearson.

UPS Check

Procedure: Put students in small groups or have them work independently. Provide a problem for them to solve. Direct them to draw a UPS-Check mat and work together to: discuss the problem and **UNDERSTAND** what the problem is asking, decide on a problem solving strategy, make a **PLAN**, **SOLVE** the problem, and then **CHECK** to see if the answer makes sense.

See the example, below.



Question (VA Math SOL Grade 2): Jacob has 4 scallop shells, 3 whelk shells and 1 oyster shell. What fractional part of the shells are whelks?

Student Work Example:

U

We need to find how many shells are in all. Then you need to find how many of the shells are whelks .

S

Draw 8 shells.



3 out of the 8 shells are whelks, so $\frac{3}{8}$ of the shells are whelks.

P

We can draw a picture of the shells to show the information. Then we can use the picture to find the answer.

Check ✓

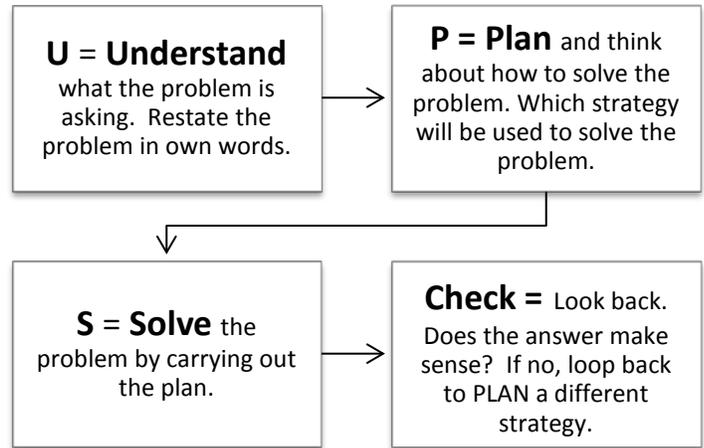
There are 8 shells altogether. That is the denominator. 3 out of 8 of shells are whelks, so 3 is the numerator.

$\frac{3}{8}$ shells are whelks. That is correct.

UPS Check

Procedure: Put students in small groups or have them work independently. Provide a problem for them to solve. Direct them to draw a UPS-Check mat and work together to: discuss the problem and **UNDERSTAND** what the problem is asking, decide on a problem solving strategy, make a **PLAN**, **SOLVE** the problem, and then **CHECK** to see if the answer makes sense.

See the example, below.



Question (VA Math SOL 4.4d): Mr. Gary's class has a goal of selling 500 pizzas in three months. The class sold 135 pizzas in the first month and 257 pizzas in the second month. Exactly how many more pizzas does the class need to sell to reach its goal?

Student Work:

U

We know that the students need to sell 500 pizzas. They have sold some already; we need to find out how many more they need to sell to get to 500.

P

We can draw a picture that shows the number of pizzas sold and the number of pizzas needed. It can show part-part-part- whole. Then we can use the picture to help us add and subtract to find the answer.

S

Draw a part-part-whole picture to represent a total of 500 pizzas. Add the parts together and subtract from the whole. This will tell us how many pizzas need to be sold to get to 500.

500 pizzas altogether		
135 pizzas first month	257 pizzas second month	How many more pizzas to sell?

135 pizzas + 257pizzas = __ pizzas sold
How many more to get to 500?

Check ✓

135pizzas + 257pizzas = 392 pizzas
500 pizzas needed
--392 pizzas sold
108 need to be sold to get to 500

Check: $135 + 257 + 108 = 500$
Yes, it is correct.

Positive Behavioral Interventions and Supports (PBIS): Exploring a Systemic Approach to Supporting Student Behavior

Kimberly Yanek

Positive Behavioral Interventions and Supports of VA and Behavior Specialist



Research

School divisions are moving from a fragmented, reactive approach for supporting student social behavioral needs to a systemic, proactive and preventative approach. School-wide Positive Behavioral Interventions and Supports (SWPBIS) is a “decision making framework that guides selection, integration, and implementation of the best evidence-based academic and behavioral practices for improving important academic and behavior outcomes for all students” (Retrieved from <http://www.pbis.org/>). Outcomes associated with implementation of SWPBIS with fidelity include: reduction in problem behavior (Bradshaw, Mitchell, & Leaf, 2010); increased academic engaged time and enhanced academic outcomes (Horner et al., 2009); and improved school climate (Bradshaw, et al., 2008; Horner et al., 2009).

Application and Resources

Resources to support implementation of SWPBIS are typically provided through universities and state departments. Two international online resources, [OSEP Technical Assistance Center on Behavioral Interventions and Supports](#) and the [Association for Positive Behavior Support \(APBS\)](#) provide research and practical applications. [Positive Behavioral Interventions and Supports of VA](#) provides online professional learning and resources for accessing support in VA.

Recently, the 11th *International Conference on Positive Behavior Support* and the 2013 *National PBIS Leadership Forum* were held in Chicago, IL. Conference presentation materials can be accessed through the following websites. Presentations include school, targeted, and individual applications of PBIS, as well as, strands around mental health, high school implementation, and classrooms.

Conference Presentations and Resources:

- ✚ [11th International Conference on Positive Behavior Support \(available soon\)](#)
- ✚ [2013 National PBIS Leadership Forum](#)

References

- Bradshaw, C. P., Mitchell, M. M., & Leaf, P. J. (2010). Examining the effects of school-wide positive behavioral interventions and supports on student outcomes: Results from a randomized controlled effectiveness trial in elementary schools. *Journal of Positive Behavior Interventions*, 12, 133-148.
- Bradshaw, C.P., Koth, C.W., Bevans, K.B., Ialongo, N., & Leaf, P.J. (2008). The impact of school-wide positive behavioral interventions and supports (PBIS) on the organizational health of elementary schools. *School Psychology Quarterly*, 23(4), 462-473.
- Horner, R., Sugai, G., Smolkowski, K., Eber, L., Nakasato, J., Todd, A.W., & Esperanza, J. (2009). A randomized, wait-list controlled effectiveness trial assessing school-wide positive behavior support in elementary schools. *Journal of Positive Behavior Interventions*, 11(3), 133-144.

National Professional Development Center for Autism Spectrum Disorders Releases New List of Evidence-based Practices

Kelly Barrett, Behavior Specialist (Applied Behavior Analysis and Autism)

Research

Evidence-based intervention practices (EBPs) for children with Autism Spectrum Disorders are the basis on which effective programs are built. In 2010, the National Professional Development Center (NPDC) conducted a review of the literature (from 1997-2007) and identified 24 EBPs. The center has recently completed an expanded and updated review, *Evidence-Based Practices for Children, Youth, and Young Adults with Autism Spectrum Disorders* (Wong, C., Odum, S. L., Hume, K., Cox, A. W., Fettig, A., Kucharczyk, S., Brock, M. E., Plavnick, et al. 2013) which yielded a total of 27 practices. The report of the 2014 review is now available in PDF format from the [Autism Evidence-based Practice Review Group at National Professional Development Center for Autism Spectrum Disorders](#). Each EBP has a quick [fact sheet](#) which provides an overview and a list of research studies that provide the evidence.

Application: New Practices Added to the 2010 List of Evidence-based Practices

Structured Play Groups- Structured play groups (SPG) are interventions using small groups to teach a broad range of outcomes. SPG activities are characterized by their occurrences in a defined area and with a defined activity, specific selection of typically developing peers to be in the group, clear delineation of theme and roles by adult leading the activity, and prompting or scaffolding as needed to support the students' performance related to the learning goals.

Technology-Aided Instruction and Intervention- Technology-aided instruction and intervention (TAII) are those in which technology is the central feature of an intervention that supports the goal or outcome for the student. Technology is defined as "any electronic item/equipment/application/or virtual network that is used intentionally to increase/maintain, and/or improve daily living, work/productivity, and recreation/leisure capabilities of adolescents with autism spectrum disorders" (Odom, 2013). TAII incorporates a broad range of devices, such as speech-generating devices, smart phones, tables, computed-assisted instructional programs, and virtual networks.

Exercise -Exercise (ECE) is a strategy that involves an increase in physical exertion as a means of reducing problem behaviors or increasing appropriate behavior while increasing physical fitness and motor skills. With ECE, learners engage in a fixed period of programmed physical activity on a regular basis. ECE sessions often begin with warm-up exercises and end with cool-down activities and may include aerobic activities.

Scripting- Scripting (SC) involves presenting learners with a verbal and/or written description about a specific skill or situation that serves as a model for the learner. The main rationale of SC is to help learners anticipate what may occur during a given activity and improve their ability to appropriately participate in the activity. SC is practiced repeatedly before the skill is used in the actual situation. When learners are able to use the scripts successfully in actual situations, the script should be systematically faded. SC is often used in conjunction with modeling, prompting, and reinforcement.

Resources

[National Professional Development Center for Autism Spectrum Disorders Briefs on Evidence-based Practices](#)

[Autism Internet Modules](#)

For the report and fact briefs on the 27 EBPs [click here](#).



References

Wong, C., Odum, S. L., Hume, K., Cox, A. W., Fettig, A., Kucharczyk, S., Brock, M. E., Plavnick, J.B., Fleury, V. P., Schultz, T. R. (2013). *Evidence-based practices for children, youth and young adults with autism spectrum disorder*. Chapel Hill: The University of North Carolina, Frank Porter Graham Child Development Institute, Autism Evidence-Based Practice Review Group.

Odom, S.L. (2013). *Technology-aided instruction and intervention (TAII) fact sheet*. Chapel Hill: The University of North Carolina, Frank Porter Graham Child Development Institute, The National Professional Development Center on Autism Spectrum Disorders.

Using Child Outcomes as a Framework for IEP Development

Kristen Ingram Weatherford, Early Childhood Special Education Specialist

Research

Measuring child progress is an ongoing and essential process that informs instruction and assists in IEP development. Early childhood teachers collect progress data regularly from a variety of sources that include anecdotal notes, parent reports, as well as curriculum-based and norm-referenced assessments. The task of summarizing and interpreting this data occurs most often when teachers develop the child's present level of performance for the annual IEP. It has become common practice that Child Outcome Summary Forms (COSF) are only reviewed when a child enters and exits the preschool program. In reviewing the COSF so infrequently, the IEP team misses a *key opportunity* to integrate the COSF process into the annual IEP review as an efficient method of organizing and reviewing data on child progress.

Application

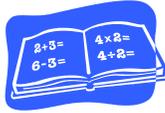
Consider utilizing the three child outcomes as an organizing framework to:

- Prompt the IEP team to collect data from multiple sources and summarize results onto the same scale.
- Maintain a focus on the “whole child” rather than a list of unrelated strengths and weaknesses. (Note: This process does not affect the composition of annual goals, but does assist in prioritizing skills based on active and successful participation across a variety of settings.)
- Prompt the IEP team to revisit the developmental trajectory of the child in relation to their same age peers and plan instruction accordingly.
- Keep the “big picture” in mind about where the child needs to be upon exiting the program.
- Streamline the process of completing the COSF upon exit, decreasing teacher workload.

Learning Opportunities

The [Early Childhood Outcomes Center](#) (ECO) provides current information and resources on measuring child outcomes. They have developed webinars and quick reference guides to assist teachers in completing and interpreting data on Child Outcome Summary Forms. Start exploring the ECO Center with the following resources.

- [Discussion prompts](#) that could be used to elicit conversation about a child's functioning with regard to the three global child outcome statements.
- [Decision tree](#) for assisting teams in determining ratings on the COSF.
- A webinar on [integrating IEP development](#) with the three child outcomes.
- A refresher on [choosing progress categories](#) at entry and exit.



Writing Across the Content Areas

Daniel Biegun, Intellectual Disabilities Specialist



Research

It is important for students to have daily opportunities to write. According to Koppenhaver and Erickson (2007), students should write at least four days a week, otherwise they won't learn to like writing. Infrequent opportunities to write suggests to kids that writing is difficult and not fun. This may be especially true for emergent writers, including many learners with intellectual disabilities. One way to provide regular writing practice for students is to ask them to write about what they are learning during math, science, and social studies lessons. A great benefit of writing about a specific content area is that it increases comprehension. Jacobs (2010) noted a strong relationship between reading, writing, and understanding. Writing assignments were found to help students make meaning of content and connect to new concepts.

Application

Here are a few ideas for content-based writing tasks and related ASOLs.

Science

- Prior to a science experiment, ask students to write their predictions (3S-SI 1a, 3S-SI 2b, 5S-SI 1e, 8S-SI 1e).
- Write a list of simple machines (3S-FME 3d), types of weather (5S-ESS 1a), items grown on farms (8S-ECO 7a), or resources found in Virginia (HSS-ERH 2c).
- Choose an animal and write a menu of its favorite foods (3S-LPS 6b,c).
- Choose a planet and write an imaginary travel report (5S-ESS 2a, HSS-ESS 1c).

Social Studies

- Write a letter to a famous American (HS-H 1a, HS-H 3, HS-C 4).
- Make a list of favorite Thanksgiving foods (HS-H 1b).
- Choose a career and write a job description (HS-E 1).

Resources

[Creative Writing Ideas](#)

Get more information on writing across the content areas, including links to specific writing prompts.

[We Are Teachers](#)

Tips to consider when planning writing instruction.

References

- Jacobs, V. A. (2010). Reading, writing, and understanding. *Educational Leadership*, 60(3), 58-61.
- Erickson, K., & Koppenhaver, D. (2007) *Children with disabilities: Reading and writing the four blocks way*. Greensboro, NC: Carson-Dellosa Publishing Company.

eBooks Can Improve Phonological Awareness Skills, Alphabetic Knowledge, and Vocabulary Development

Dr. Jennifer Mitchell, Assistive Technology Specialist

Research

Research on the efficacy of digital books supporting literacy development for young children is overwhelmingly positive for children with and without disabilities. Electronic books can support literacy development in the areas of phonological awareness skills, alphabetic knowledge, and vocabulary development (Salmon, 2013). Even with the knowledge of benefits children derive from electronic books, the absence within education is apparent. According to IDEA 2004, IEP teams must consider whether the child needs assistive technology (Mittler, 2007). Once AT is determined as a need for a student to access the English/Language Arts Curriculum or other content areas, educators implement assistive technology tools for children with disabilities in order to provide access to books. Unfortunately, survey numbers show that students usually receive tools depending on the educational environment where they are served and it is rarely in the general education classroom (Quinn, Behrmann, Mastropieri, and Chung, 2009). Technology enhanced learning should be prevalent and providing technology for all students will help classrooms become inclusive while supporting positive academic outcomes.

Application

Consider accessing the following resources.

If you live in Virginia, you can get TumbleBooks free.

<http://www.lva.virginia.gov/lib-edu/ldnd/tumblebooks.htm>

Tarheel Reader from UNC Center for Literacy and Disability Studies

<http://tarheelreader.org/>

Children's Storybooks Online

<http://www.magickeys.com/books/>

Free Online Children's Books to Read

<http://www.wegivebooks.org/books>

Students who are bilingual can access books in different languages

<http://en.childrenslibrary.org/>

<http://www.childrensbooksonline.org/library-translations.htm>

My YouTube Playlist of Digital Books for Young Children

<http://goo.gl/H1QDXx>

References

- Mittler, J. (2007). Assistive technology and IDEA. In C. Warger (Ed.), *Technology integration: Providing access to the curriculum for students with disabilities*. Arlington, VA: Technology and Media Division (TAM).
- Quinn, B. S., Behrmann, M., Mastropieri, M., & Chung, Y. (2009). Who is using assistive technology in schools? *Journal of Special Education Technology*, 24(1), 1-13.
- Salmon, L. G. (2013). Factors that affect emergent literacy development when engaging with electronic books. *Early Childhood Education Journal*, 1-8.

Click on each title below to view more information and to access registration form

[Council for Exceptional Children 2014 Convention and Expo](#)

April 9-12, 2014

Save the date for the CEC 2014 Convention & Expo in Philadelphia, *the* premier professional development event for special and gifted education.

Thousands of special education teachers, administrators, researchers, professors and students from around the world will discuss pressing issues and share information in areas such as Common Core State Standards, administration, autism, co-teaching and collaboration, emotional and behavior disorders, instructional strategies for math, reading, and science, policy, technology and response to intervention. The CEC Convention & Expo offers hundreds of educational sessions conducted by leading experts and endless opportunities to network with others working with children and youth with exceptionalities and their families. Attendees will also have the opportunity to learn about new and pending legislation and explore cutting-edge products and services in the exhibit hall.

Please register before March 12, 2014. For more information, visit: <http://www.cec.sped.org/convention>

[Go Beyond the Content: Creating Inspirational Culture](#)

April 9, 2014

Just as teachers actively create engaging content lessons, the must also actively create an inspiring culture. Academic problems are rooted in what students believe about themselves and life more than in intellectual weakness. Learn practical ways to address student belief systems and inspire students in your classroom. Presented by Scott Habeeb, Principal, Salem High School.

[Summer Content Teaching Academy at James Madison University](#)

June 23 – 27, 2014

The 15th Annual Content Teaching Academy will be held on the campus of James Madison University, located in the beautiful and historic Shenandoah Valley. The programs (Academies) offer high quality professional development that includes in-depth studies in a range of content areas. In addition, each Academy is designed to engage participants in critical dialogues of practice with instructional sessions conducted by scholars and master teachers who understand the challenges associated with today's classroom. Contact email: cta@jmu.edu

[Summer Leadership Training for Students with Disabilities](#)

July 28 – August 1, 2014

Once a year, rising high school juniors and seniors can apply to become a delegate for the Youth Leadership Forum (YLF). Although applications are due by March 31, the YLF occurs in the summer—this year it will be held July 28-August 1 at Virginia Commonwealth University.

If you know of a student with a disability who is motivated, and wants to learn not only leadership skills but also is interested in advocacy, history, and improving the lives of people with disabilities, share the link [to the video](#) on You Tube at <http://bit.ly/14YLFva1> and [the application](#), which can be downloaded at www.VaBoard.org

[Virtual TechKnowledgey](#)

The 3rd Annual Virtual TechKnowledgey Conference featuring Keynote Speaker Penny Reed, webinars on a variety of AT topics and a virtual exhibits hall is available at T/TAC Online. Visit <http://www.ttaconline.org/atstdp> for more information.

2012 Virtual TechKnowledgey Conference still available!

http://ttaconline.org/staff/s_training/technology_conference/?dis=21. Click on Region 2.