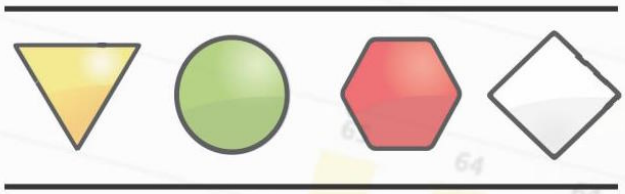
The 4D-i® Story



The Who, What and How Behind the creation of the 4-Dimensions Inventory

The 4D-i Story

Backgrounder

In February, 2000, Bob Wiele founded OneSmartWorld® Inc. to develop a new 21st century solution to help people and teams in business and education to think better, solve problems faster and accelerate collaborative teamwork. His goal was to go beyond personality instruments like MBTI and DISC and build a system of thinking skills, processes and tools that people everywhere could use to achieve their potential.

Wiele assembled a small team to work on five key development challenges.

1. DEVELOP A NEW THINKING SKILLS FRAMEWORK. The first challenge was to develop a new precision thinking skills framework to integrate cognitive and emotional intelligence and resilience into one model. The intent was to identify discrete and learnable thinking strategies that anyone could use and master.

2. DEVELOP A SCIENTIFIC ASSESSMENT INSTRUMENT. The second challenge was to build a scientific, research-based psychometric instrument, to measure people's preferences in the use of these thinking strategies.

3. BUILD PRACTICAL TOOLS TO DEVELOP SKILLS. The third challenge was to design specific online learning tools to help people develop awareness and skills in all 4 dimensions and strategies. The goal was to deliver results directly to users, without requiring supervision by a certified expert.

4. CREATE A COMMON LANGUAGE FOR ACCELERATING COLLABORATION. The fourth challenge was to design a simple common graphic process language for teams to use to think things through together. The goal was to provide visual shorthand for individuals and teams to decide which type of thinking was needed for a particular task or situation and shift into that mindset.

5. BUILD HIGH IMPACT SKILL PROGRAMS. The fifth challenge was to produce learning materials and programs to build skills and improve performance and productivity.

The Design of the Total Intelligence Thinking Skills Framework for the 4D-i

The core intent of the 4D-i is to help people improve their personal and professional effectiveness. The 4D-i was constructed on Wiele's total intelligence conceptual framework. It consists of 4 dimensions, seven mindsets and 21 strategies for high performance thinking. The first 3 dimensions of the framework, creativity, understanding and decision-making, have a cognitive or thinking mindset, and an emotional or feeling mindset.

The thinking mindsets were named 'cool', to align with accessing and using more objective thinking strategies. The emotional mindsets were named 'warm', to align with accessing and using more subjective and intuitive emotional thinking strategies.

Creativity is the first dimension of total intelligence. A green circle visually represents it. It has six strategies. There are four strategies in the creative thinking or cool green mindset – brainstorm ideas, challenge assumptions, reframe problems into opportunities and envision possibilities. There are two emotional strategies in the creative intuition or warm green mindset – flow and flash of insight.

Understanding is the second dimension. An inverted yellow triangle visually represents it. It has six strategies. There are three strategies in analytical thinking or the cool yellow mindset – scan the situation, structure information and clarify understanding. There are three emotional strategies in the compassion or warm yellow mindset – tune in to feelings, empathize with others and express feelings.

Decision-making is the third dimension. It is visually represented by a red stop sign. It has six strategies. There are four strategies in the critical thinking or cool red mindset – get to the crux, conclude, validate the conclusion and rely on experience. There are two emotional strategies in the emotion-based decision-making or warm red mindsets – beliefs based/values driven and gut intuition/trust your heart.

Personal spirit is the fourth dimension and is visually represented by a white diamond. It has three strategies. These are named outlook, sense of control and initiative.

The 4D-i: Know Self and Grow Self

The original construct of total intelligence, developed by Bob Wiele, brought together three layers of intelligence into one integrated framework – cognitive thinking strategies or mind, emotional thinking strategies or heart and personal spirit strategies or resilience.

The 4D-i® acts as an assessment for learning how to acquire self-understanding and develop all aspects of total intelligence. The 4D-i shows individual preferences for using the 4 essential dimensions of total intelligence – creativity, understanding, decision-making and personal spirit.

The online 4D-i integrates 11 cognitive strategies, with 7 emotional strategies and 3 strategies in personal spirit, into one conceptual framework[4]. Information on each mindset and strategy is embedded into the online 4D-i instrument's dashboard.

The dashboard has four key functional tabs. The first, My 4D-i, offers detailed descriptors of each of the mindsets and strategies and provides online interactive interpretive information on each person's results.

The second function, Coach, offers personalized advice on how to capitalize on one's strongest preferences and how to expand one's capabilities in all the mindsets and strategies.

The third function, Portfolio, produces a 36 page individualized PDF report that contains detailed graphs and summaries plus personal development planners.

The fourth function, Search, is a talent management and human capital management application to accelerate collaborative teamwork. It makes everyone a resource to other team members and can be used to build stronger relationships and assemble diverse, more effective teams. The model of total intelligence and the development of the 4D-i are described in Wiele's book, *Smart for Life*[5].

The Sources for the Total Intelligence Construct and the 4D-i Instrument

For several decades, Wiele had conducted informal research and compiled data from ongoing reviews of the literature in brain development, thinking styles, psychology, leadership, learning, sport psychology, mental fitness and high performance thinking skills. The 4D-i is based on specific thinking skills and strategies not personality traits or styles.

Wiele's search for the set of foundational thinking strategies to construct the total intelligence framework was inspired and informed by a wide range of thought leaders, authors and researchers

Key sources included Robert Sternberg and his work on the three types of thinking in successful intelligence – practical, analytical and creative thinking – and Jerry Rhodes' seminal work in the UK and Europe, on the three elements of effective intelligence - to judge, to describe and to realise. Rhodes stands as a significant pioneer in the coding of specific thinking skills in effective intelligence. Chogyam Trungpa, Geshe Michael Roach and other Buddhist teachers' writings provided insight and guidance on the importance of compassion, mindfulness and mental self-management. Mihaly Csikszentmihalyi's work on flow was vital in the development of flow and flash of insight, the two strategies in creative intuition. The research and writings of Peter Salovey, John Mayer and Daniel Goleman were valuable in applying and integrating elements of emotional intelligence into the 4D-i. Edward Russo and Paul Schoemaker's work on decision making and Gary Klein's research on the use of gut intuition and deep experience in decision-making were pivotal in formulating strategies in decision-making. Wiele researched other thought leaders' work on thinking dispositions, thinking styles and the elements of critical and creative thinking, such as Sternberg's work on thinking styles, David Perkins' identification of key thinking dispositions[15], John Clarke's Patterns of Thinking and Art Costa's Habits of Mind. Wiele's five year collaboration from 1986 to 1990 with the Canadian sport psychologist Peter Jensen contributed to the understanding of techniques to develop mental fitness and high performance thinking under pressure.

The 4D-i was the first psychometric to incorporate a dimension on personal spirit[13]. Personal spirit was built into the original 4D-i research in 2000 as a key factor in increasing resilience, health and human performance. Personal spirit is a construct that is aligned with a number of other psychological constructs, including Albert Bandura's self-efficacy, Salvatore Maddi and Suzanne Kobasa's research on hardiness, Martin Seligman's research on learned helplessness and optimism, Barbara Fredrickson's research on positivity, and the work on grit developed by Angela Lee Duckworth in 2007. The selection of initiative as a key factor in personal spirit was based on Robert Kelley's research on star performers at Bell Labs.

The Scientific Method and Research Team in the 4D-i Development Process

The formal research process to develop the 4D-i instrument began in 2000. The first phase concluded in 2001 with a working online product.

The scientific research team of organizational psychologists came from Jackson Leadership Systems, an Ontario based, global leadership development firm. Chuck Evans. Ph.D. was the lead researcher on the 4D-i project. Evans was assisted by Kim Snyder, Ph.D., Murray Stainton, Ph.D., and by Professor Kevin Kelloway, Ph.D. from St Mary's University. Evans' research team used accepted scientific research protocols to refine and validate the initial assessment test items and norm the instrument.

Dan Clements led the 4D-i project team. Clements and Lynn Iles both contributed significantly to the conceptual design of the total intelligence model. Clements was instrumental in the design and development of the 4D-i's online interactivity and data collection. Mandy St. Germaine and a group of colleagues from across North America, provided advice and critical feedback during the early phases and subsequent revisions of the 4D-i and its online outputs.

The first version of the 4D-i was normed on a research population of approximately 1,000 working people from 11 countries. This research process refined the conceptual model of 7 mindsets and the clustering of the 21 strategies. A subsequent re-norming project in 2004 was based on the research results of 8,000 people. A third norming project in 2008 was based on the 4D-i results of 25,000 people.

The 4D-i assessment produces online and print portfolio results that use a common, color-coded, symbol-based language to identify thinking styles. Edward de Bono developed his six thinking hats as a color-coded language for thinking' but lacked a research based psychometric. The 4D-i assessment is also used as a launching pad to build teams, enhance thinking skill development and as a framework to direct thinking to improve results in self-management, planning, problem solving, collaborating and innovating.

How the 4D-I is Constructed

The 4D-i instrument is organized into two sections. The first measures individual preferences for the use of each of the 18 cognitive and emotional strategies within the first three dimensions. This section of the 4D-i contains 45 paired choices, organized into nine clusters of different scenarios. Five clusters focus on personal situations, two focus on inter-personal situations and two focus on group settings. The second section of the 4D-i contains 24 self-rating statements to determine levels of personal spirit. The 4D-i produces results based on a normative database, as described in this paper, in five levels of preference – low, low average, average, high average and high. Both high and low results represent one standard deviation from the norm.

Each of the first 3 dimensions in the total intelligence model is colour coded, using a traffic light as the mnemonic device to make the system and language easier to remember and use in every day life. Red is the color for decision-making. It signifies a preference for and a shift in thinking to stop and decide. Yellow is the color for understanding. It signifies a preference for and a shift in thinking to slow down and understand. Green is the color for creativity. It signifies a preference for and a shift in thinking to go and create ideas. White is the color for personal spirit. It signifies a preference for and a shift to positivity and self-control and initiative.

The Four Uses of the 4D-i in Life and Work

Each dimension, mindset and strategy in total intelligence is designed to have four core applications to know self, build skills, shift mindsets and get work done.

DEVELOP PEOPLE

1) Map Styles - the total intelligence system is built around the online 4D-i /4 Dimensions Inventory to give all members a profile of their preferred thinking styles. The 4D-i describes the different types of thinking each person likes to use at work and in life.
2) Build Skills – develop a portfolio of higher order skills in thinking, working, problem solving and collaboration. The 4D-i empowers people with information and coaching advice to increase creativity, deepen understanding, improve decision-making and strengthen person spirit. This second application goes beyond typical strengths type indicators to encourage people to build additional foundational competencies to improve their results.

ACCELERATE COLLABORATION AND TEAM PERFORMANCE

3) Shift States of Mind – people and teams can improve performance by using the total intelligence system as a framework to shift thinking deliberately, from one state of mind to another, to match the demands of the person or task.
4) Follow Stages of Process - teams can choose to improve their productivity, by using the total intelligence system as a process methodology to get different people onto the same page and follow sequential thinking processes to achieve results.

Business Highlights and Applications

For business, the 4D-i was designed to address the shifts in the workplace and provide a common language and practical tools. The intent is to help people understand themselves and others better and to increase their versatility. It is designed to help team and enterprises harness cognitive style diversity to improve decision-making and to accelerate collaborative teamwork and innovation.

In 2003, the 4D-i was rated as the number one leadership development instrument in the world, from a pool of 120 assessments, by an expert panel from Simon Fraser University, Camosun College and the University of Victoria. It was selected for the government of British Columbia's *Leading the Way* program to train over 6,000 managers and executives. A wide range of corporations and institutions selected the 4D-i as a solution for new tools to develop leaders, build teams and support cultures of innovation, accelerated collaboration and talent optimization.

In 2004, the 4D-i was the first psychological assessment to be recognized and accepted by the government of Canada's Scientific Research and Experimental Development program. The 4D-i was classified as a scientific advance in measurement theory and practice.

In 2009, the 4D-i and the OneSmartWorld system produced a 558% ROI for a leading Canadian airline, by saving time and accelerating collaboration results in meetings. This was documented in *Investing in People*, a formal three-year evaluation study, sponsored by the government of Canada, on the return on investment of corporate training. This result was the highest recorded ROI ever measured and achieved in a corporate training program.

A large multi-national energy company used the 4D-I to map and tap into their internal talent on a series of difficult issues to produce a $40 million dollar return within six months. A large Canadian financial institution used the 4D-i and OneSmartWorld system to accelerate business results and generate new revenues and market share.

Business organizations use the 4D-i in to develop leaders, to reduce time wasted in meetings and to accelerate collaborative teamwork and innovation.

Education Highlights and Applications: Developing 21st Century Skills for Success

A critical use of the 4D-i is to empower learners to understand and harness their brain's potential for change. The 4D-i harnesses the individual's ability to grow and change his/her thinking. It is closely aligned with Carol Dweck's work on fixed vs. growth mindsets in education. The 4D-i provides information to 'know self' and specific coaching advice and tools to 'grow self' by expanding one's repertoire of thinking skills.

To meet the growing needs for 21st century skills in education, Wiele and his team created the SmartSkills® system, an application of total intelligence for education. The focus of 'smart skills' is on building higher order thinking skills, using the 4D-i as a foundational 'assessment as learning'. The 4D-i is used as a portal for mastering higher order thinking and behavioural skills in high schools, post-secondary education and workforce development programs.

Because thinking and language are at the foundation of all higher order skills, educational leaders can use the SmartSkills as a unified platform to save time and deliver five of the higher order 21st century skills viz. thinking skills – creative, analytical and critical thinking skills – problem-solving skills, inter-personal communication skills in speaking and writing, collaborative teamwork skills, and resilience.

The 4D-i has been selected in schools, colleges and universities, as a 21st century tool to personalize learning, by profiling how each learner likes to think and approach tasks. It enables them to build appreciation for how people think differently than they do and to develop skills in working with different people. The 4D-i helps learners increase their self-awareness and develop greater self-efficacy. It also helps them build practical skills in collaborative group work.

Teachers and instructors use their student 4D-i results to personalize learning and coach specific skill development in each learner. They use the common language and smart track thinking processes to improve individual student performance and results. Academic leaders use the aggregate results of the 4D-i as an advanced learner analytic to focus efforts in key performance indicators of retention, student success, academic achievement and employer satisfaction.

In 2010, a number of school jurisdictions and community colleges began introducing the 4D-i into courses and programs.

In 2012, a research project on 1000 at-risk learners in six learning centres at the Simcoe County District School Board in Ontario identified a pattern of a low preference for analytical thinking. Given the significant focus in schools on learning course content and memorizing for tests, student without analytical thinking skills struggle and are more likely to fail. Progressive teachers used these results to develop specific curriculum interventions to work on the three strategies of analytical thinking, leading to an increase in student performance and retention.

In 2014, a research project at Centennial College, Scarborough, Ontario, found that students in a first year business course who showed a high preference for analytical thinking were more likely to achieve higher academic results, than students who did not show a preference for that type of thinking.

In 2015, the government of Manitoba launched its Success @ Work: Thinking Skills for Today's Workplace, a five-module program for delivering the higher order essential skills. All of the modules are based on the common language, core strategies and processes in the total intelligence platform. In 2015, the 4D-i and the SmartSkills: 21st Century Skills for Career and Life Success were selected for the government of Ontario's youth job readiness program.

In Summary

The 4D-i is a premier talent solution for the 21st century team based enterprise. The 4D-i goes beyond a focus on strengths and helps people succeed by building specific skills in all four dimensions of total intelligence. Leaders can use the 4D-i data analytics to construct diverse, more effective cross-functional teams. They can use the system to build more collaborative cultures. The 4D-i can be used to select the right people, to onboard more efficiently, develop leaders and accelerate collaborative teamwork. The 4D-I gives leaders a set of powerful tools to map and harness the brainpower in their organization to compete and win.