

The STEP Profile



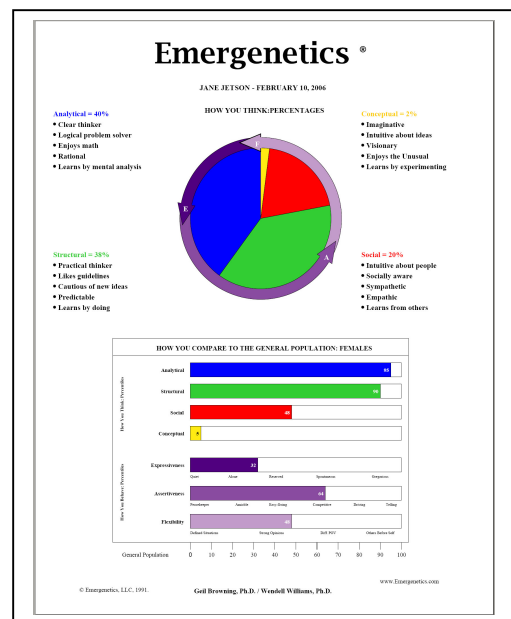
Every individual is unique. From the way we look to how we behave, speak, and act, we all do it differently. We also have our own unique methods of learning. Once those methods are identified, it can make all the difference. Students can learn in a way that suits them best, parents can better understand their children, and teachers are better equipped to communicate, solve problems, and help students reach their goals.

STEP (Student/Teacher Emergenetics Profile)® is an exciting new way to understand how kids learn and how teachers can facilitate an environment of progress and success. Based on the acclaimed [Emergenetics](#) program, STEP recognizes that the way children think, behave and learn is born of two distinct factors: the developmental importance of both nature (genetic tendencies to think and act in certain ways) and nurture (the importance of surroundings, upbringing, and socialization).

Based on a broad body of current brain and behavioral research, the STEP profile is geared specifically for students ages 9-18. Along with our innovative [STEP programs](#), the STEP Profile is an insightful tool for parents and educators with the power to transform a child's educational experience.

The STEP profile comprises 108 questions that assess the thinking and behavioral attributes of children. Additionally, it offers practical teaching suggestions for individualizing each student's learning.

The profile gauges children's responses to specific learning environments and teaching techniques. Some children learn best when teachers use humor, while others prefer a serious environment. Some children learn best when the teacher integrates music into the lesson. Still others are at their best hearing a lecture. By covering a wide gamut of situations and teaching techniques, we help uncover learning preferences and enhance the school environment.



STEP Research



Instrument Design

The general design of the STEP includes both a theoretical and an ad hoc practical approach. The basic theory consists of defining four internal thinking styles and three external behavior styles that can be easily identified and understood by most people. The practical approach includes examining underlying patterns that help isolate and identify effective individual teaching techniques. The overall objective was to develop a tool that is easy to understand and apply while avoiding theoretical psychobabble and arcane methodology.

The instrument contains two parts. The first section contains 84 items that are statistically related to the three derived behaviors and four thinking styles. These items reflected items drawn from a base of over 25,000 previous participants. Items were edited for students aged 9-18. The second section of the instrument contains 24 common teaching techniques gathered from a sample of middle and high school teachers. The instrument was written to a Flesch Reading Ease of 78.4 and a Flesch Kincaid Grade Level of 6.4 to accommodate a wide age range of students.

Subjects

Data was gathered from a sample of 2705 students representing 18 different teachers. There were 1333 girls and 1372 boys in the study: 508 were 8-10 years of age, 681 were 11-12, 490 were 13-14, 672 were 15-16, and 354 were 17-18.

Reliability

A major concern of test developers is whether each test item reliably measures what it is supposed to measure. If a test is well designed, construct scores from one part of the test should be about the same as scores measuring the same construct in another part of the test. Thus, test items intended to measure the same construct should give approximately the same results from beginning to end. Statistical procedures used in development of the STEP profile include split-half (overall) reliability, inter-item reliability (item by item) and test/re-test reliability. During development, the STEP was carefully measured for both inter-item and construct relationships. For example, if the response to question 14 was supposed to measure Assertiveness, the value of this response would be expected to increase with the total score for Assertiveness. If the item score and total score moved independently of each other, this item would be dropped from the test.

The measure of Split-half (overall reliability) used for the STEP is Coefficient Alpha. Coefficient Alpha refers to the average of all possible inter-item and split-half correlations, both good and bad. There were 8 to 12 items in each factor to maintain high test-retest reliability. Without relying on single indicators of reliability, which may contain large amounts of error, Coefficient

Alpha provides an overall measure of the internal reliability of the test. The Coefficient Alphas for the STEP are:

<i>Construct</i>	<i>Coefficient Alpha</i>
Analytical	.79
Structural	.63
Social	.67
Conceptual	.76
Expressiveness	.68
Assertiveness	.70
Flexibility	.55

At this time, test/retest measures are being considered, but it's too early in the development of the instrument to adequately perform this analysis.

Validation Results

The validity of a test refers to how well a test records what it is supposed to measure. Like reliability, there are several different types of validity. The STEP meets all requirements for face, content and construct validity.

Face validity refers to whether a test-taker perceives the test to be credible. If thinking styles and behaviors are to be measured, for example, asking questions about bank deposits or religious affiliations seriously threaten face validity. Irrelevant questions may stimulate respondents to question the validity of the entire test and thereby produce unreliable answers. Questions on the STEP were specifically chosen for their relevance to everyday classroom events and behaviors.

Content validity refers to the adequacy of the STEP to measure the behavior it is supposed to measure. Unlike a typing test which has a clear relationship between what the test measures and a specific skill, content validity is more difficult to obtain for a general personality instrument. Therefore, the content validity for the STEP relied on item relevancy, statistical data, and observation. From a relevancy standpoint, the specific questions in the test address situations and behaviors which almost every student ages 8-18 experiences. The generalizability of these behavior samples was validated through statistical factor analysis where specific patterns of items emerged as predicted. If the targeted behaviors were random or unrelated, no ordered patterns would have been observed.

The final form of validity is *construct* validity. Construct validity refers to whether the STEP measures the fundamental constructs it is supposed to measure: specifically four types of thinking styles and three kinds of behaviors. Differential construct validity can be obtained through correlational analysis. This examination should include evidence that constructs which are different should show significant divergent relationships and constructs which are similar should show significant convergent relationships. Constructs which have no relationship should have low or no significant correlations.

Relationships of the Attributes

The relationships between thinking attributes and behavioral attributes are the strength of the STEP. However, they also make understanding the STEP slightly more complex. The relationships between the specific STEP factors are shown in the following table. All correlations are significant at or above the $p < .05$ level.

	Structural	Social	Conceptual	Flexibility	Assertiveness	Expressiveness
Analytical	.47	.22	.56	.42	-.05	.19
Structure		.34	.38	.33	-.22	.07
Social			.45	.46	-.05	.40
Conceptual				.63	.12	.51
Flexible					.19	.48
Assertive						.44

It is significant to note the strength of the positive and negative relationships between the behaviors and the thinking styles. For example, although Analytical (thinking) and Structural (thinking) are positively correlated (.47), the relationship of Analytical with Assertive (behavior) is substantially less than the size of the relationship with Structure (-.05 vs. -.22). Contrast this with the positive values associated with Expressiveness (behavior).

Gender Differences and Age Variances

Individual results for the student showed that the means (rounded) varied by gender and changed with age. Boys tend to score higher in Analytical and Assertiveness while girls tended to score higher in Social. Other relationships can be seen in the following table. NOTE: the ratings were based on self-descriptions. They may or may not have any relationship with actual skills.

		Comparison by Gender						
Age	Gender	Analytical	Conceptual	Structural	Social	Expressiveness	Assertiveness	Flexibility
10	Girl	22	32	25	24	23	19	21
	Boy	24	32	24	23	23	20	21
11	Girl	21	32	24	25	23	19	21
	Boy	24	33	23	23	24	21	21
12	Girl	20	31	24	25	24	19	21
	Boy	23	31	22	22	23	21	20
13	Girl	20	32	23	26	25	20	21
	Boy	21	30	21	22	24	21	20
14	Girl	19	31	22	26	25	20	20
	Boy	21	30	21	23	24	22	20
15	Girl	17	30	21	26	24	20	20
	Boy	20	30	20	23	24	22	19
16	Girl	19	31	21	26	24	21	21
	Boy	20	31	20	23	24	22	19
17	Girl	19	32	22	27	25	21	21
	Boy	19	30	20	24	24	22	20

18	Girl	19	29	21	25	23	20	19
	Boy	20	30	20	23	23	21	19

Comparison by Age (Girl)

As can be seen in the next table, girls' Analytical, Conceptual and Structural scores tend to fall with age. Whether this is due to educational methodology, social pressures or biological maturity still needs to be investigated.

Age	Analytical	Conceptual	Structural	Social	Expressiveness	Assertiveness	Flexibility
10	22	32	25	24	23	19	21
11	21	32	24	25	23	19	21
12	20	31	24	25	24	19	21
13	20	32	23	26	25	20	21
14	19	31	22	26	25	20	20
15	17	30	21	26	24	20	20
16	19	31	21	26	24	21	21
17	19	32	22	27	25	21	21
18	19	29	21	25	23	20	19

Comparison by Age (Boy)

As can be seen in the following table, boys' scores in Analytical, Conceptual, Structural also tend to fall with age. Like the girl data, whether this is due to educational methodology, social pressures or biological maturity still needs to be investigated.

Age	Analytical	Conceptual	Structural	Social	Expressiveness	Assertiveness	Flexibility
10	24	32	24	23	23	20	21
11	24	33	23	23	24	21	21
12	23	31	22	22	23	21	20
13	21	30	21	22	24	21	20
14	21	30	21	23	24	22	20
15	20	30	20	23	24	22	19
16	20	31	20	23	24	22	19
17	19	30	20	24	24	22	20
18	20	30	20	23	23	21	19

General Learning Environments vs. Teacher Role

When the eigenvalues of the varimax-rotated factor analytical model were examined, it showed the 24 teaching techniques clustered into four general learning environments. The environments, in turn, fell along two axes. One axis represented the role of the teacher; that is, it moved from a directive teaching style to a facilitative teaching style. The other axis represented environmental factors; i.e., moving from playful and active to quiet and introspective. These factors are illustrated below:

Playful -----**General Environment**-----Quiet
 Open Learning Environment

Direct-----Teacher Role-----Facilitate

- Students roam around the classroom and lay on the floor
- There is music, fun and a noisy atmosphere
- Kids are allowed to learn through hands-on experimentation
- Students teach and help each other
- There are no challenging questions
- The teacher gives plenty of praise
- There are few, if any hard rules

Structured Learning Environment

- Students are relaxed
- There is a serious learning atmosphere
- There is liberal use of charts, graphs and audio visuals
- Students teach and help each other
- Students are challenged with questions
- Kids get plenty of attention and praise
- The overall atmosphere is quiet and structured

Cooperative Learning Environment

- Students are challenged with questions and made to think
- There is plenty of hands-on learning
- Personal experimentation is encouraged
- There is liberal use of charts and graphs
- Students teach and help each other

Intensive Learning Environment

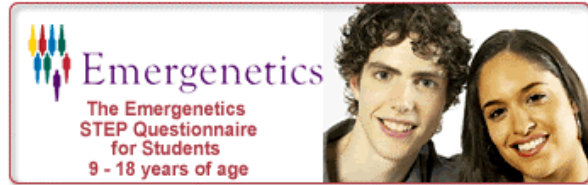
- The atmosphere is serious and structured
- Students are challenged to learn and work alone
- There are encouraged to experiment and questioned on what they learned
- Help is provided by the teacher
- The atmosphere is quiet and moves at a fast pace

Conclusion

The STEP meets the expected reliability and validity measures recommended for this type of test. It provides valuable information about four different thinking styles and three behavioral styles using norms generated from analyzing thousands of profiles. It also relates students' preferences for learning.

We offer a variety of programs for students, parents, and educators. You can customize a program that best suits your needs using all of our unique STEP programs:

STEP Programs



Individualized Student and Faculty Profiles

Individualized Profiles give you a detailed picture of the way your brain works and your strengths, whether you are a student or teacher. By giving students (aged 9-18) a [STEP \(Student/Teacher Emergenetics Profile\)@ questionnaire](#) and having faculty take the [Emergenetics profiles](#), the entire learning environment is improved and a greater level of understanding is achieved. Both STEP and Emergenetics Profiles are based on a broad body of current brain and behavioral research. We incorporate our knowledge and expertise with your profile responses to provide ways to enhance the way teachers teach and students learn.

STEP-Intensive Faculty Training Seminars

Our Faculty Training Seminars are informative, fast-paced, and fun. Most importantly you will gain new insight into relating with your students. By deepening your understanding of STEP attributes we teach you how to apply STEP concepts with students. As a faculty member, you receive your own individualized Emergenetics Profile and glean scientific information that will help you develop the “Whole” student.

Energize your classroom by learning how to form Brain Trusts to make student learning more creative and productive. Our system gives you the tools to teach using a “Whole Step” approach so your students’ learning is faster, longer-lasting, and immediately applicable.

Our approach gets results: Every one of our clients has reported an improvement in team understanding and communication following the STEP seminar.

No matter what your needs, any one of our STEP programs can help:

- A STEP seminar (4 – 6 hours) for administrators at the district level.
- An Emergenetics/STEP seminar (4 – 6 hours) for school site faculty and administration.
- A two-day STEP facilitator certification training in STEP research and applications for a Site Faculty Team of 8–10 members.
- For an additional fee, a STEP “certified coach” will provide three follow-up meetings per school site per year.

Step Seminars for Students

By extending the STEP experience for students, we are now creating an even greater arena for student improvement. At our STEP Seminars for Students, we give each student an individualized STEP Profile, and based on their unique profiles, students learn skills to improve academic performance, foster better relationships and build self-esteem. We also teach students to

understand their own motivation for learning and use this information to master new subjects. And more than just learning better, our STEP seminars help students understand how their behavior affects others' perceptions so they can become more confident and self-accepting.

To achieve the best results, we recommend that schools use a student-focused STEP seminar (2–3 hours) at a site where key faculty have already experienced an Emergenetics/STEP presentation. (Maximum 150 students per session.)

Parent Training

If you are a parent, you know that understanding your child isn't always easy. That's why we created the STEP Parent Training program. Our easy-to-use program lets you and your child complete individual profiles to identify your own thinking and behavioral attributes. With this information, we help you apply what you learn to guide your children in homework, test preparation, and decision-making. As a parent, you will understand how your child's behavioral attributes affect her/his learning processes. Parents find our training extremely helpful, although it is especially useful when parents and their children have preferences that are not alike.

Family Consultations and Workshops

With our focus on both adults and children, we develop a Whole Family approach to helping you interact with each other. Our work is customized to meet the needs of your family and this flexibility allows us to maximize your results. Begin better understanding your family with a STEP family consultation or workshop.

Assistance in Building Effective, Research-Based Learning Communities

At Emergenetics our goal is to create entire communities built on the principles of a clearer picture of learning and behavior. One of the best places to develop this community is within schools. We focus on making teachers and staff who are familiar with the Emergenetics and STEP models even more proficient and better able to affect positive change.

STEP Certified Faculty and staff are given in-depth training to help them better interpret Emergenetics and STEP profiles and assemble groups that accommodate all thinking and behavioral attributes. We train teachers to develop skills for accelerating student learning and teach them how to assemble Brain Trusts for learning, problem solving, and decision-making. With this background, these specially trained educators are able to prepare lesson plans and assessments that address all thinking and behaving attributes.